The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LVI, No. 9 CHICAGO, ILLINOIS MARCH 4, 1911

PURULENT INFECTIONS OF THE URINARY TRACT IN INFANCY *

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Purulent infections of the urinary tract are by no means infrequent in infancy and early childhood. They form probably 1 per cent. of all the illnesses that bring these little patients under the physician's care. Roughly speaking, I should estimate them to be about as frequent in my own practice as meningitis. These infections still occupy rather a unique position, in that they are almost never recognized in general practice. This is not because the babies are not sick, or because the diagnosis is difficult. The babies are alarmingly ill, have long-continued high septic fevers and become emaciated and anemic to an extreme degree, and a considerable per cent. die if untreated. The diagnosis, on the other hand, is easy and positive, and can be made by any one who can recognize a pus cell under the microscope. The reason why the diagnosis is not made in these cases is that it has not yet become generally known that pyelitis, or pyelocystitis, manifests itself, *sui generis*, in infancy as a not infrequent, serious, sharply defined, and easily recognizable disease.

Forty years ago Goschler[1] wrote of these infections in association with vulvitis in new-born infants. Twelve years later Hirschsprung,[2] of Copenhagen, again spoke of them in a paper advocating the free use of diagnostic catheterization in infants. As so frequently happens, but little attention was given to the subject until Escherich[3] in 1894 emphasized it in a paper, in which he reported seven cases—and later on, fifty more—that were nearly all due to the colon bacillus. Holt,[4] Trumpp,[5] Heubner,[6] Finkelstein,[7] and many others, quickly reported further cases that confirmed these findings. In England, Box[8] and especially the great Edinburgh pediatrician, Thompson,[9] have contributed notably to our knowledge of the subject. In this country, Holt,[4] Fischer,[10] Freeman,[11] Morse,[12] Zahorsky,[13] Abt[14] and others have reported many cases and have added materially to the literature. A series of eighty cases from Finkelstein's clinic has just been reported by Friedenwald,[15] twenty-two cases occurring in the last year, at the Kinderasyl.

A most valuable statistical contribution, because it helps us to realize in some measure the extent of this disease, was given by Goeppert.[16] Two years ago he reported 126 cases that occurred in his private practice in the little town of Kattowitz, in Oberschlesien, in a period of eight years, and estimates that in the limited area of which Kattowitz is the center, some eighty cases occur annually. In the last six years more than 1 per cent. of all of the patients that came to his office were thus afflicted. There is no reason for believing that the disease is less frequent elsewhere.

The clinical picture is in its main features a fairly constant one. A female infant becomes suddenly seriously ill with a high temperature, running commonly to 103 or 104 F., not infrequently to 105 and even 106 F. Vomiting, lack of desire for food, restlessness, etc., occur, as in all high fevers. Convulsions may usher in the attack, as one might expect, though probably no more frequently than in other high fevers. Thompson[9] has especially emphasized the recurring chills as a characteristic symptom, finding them in eight out of fifteen cases, while others have not found them so frequently. The rareness of a distinct chill in early childhood makes this a valuable symptom. The respiration is often disproportionately increased and a slight cough is common. There is frequently some indigestion that can easily lead to an improper diagnosis. The child is usually rather excitable, wide awake, restless, the eyes are bright, and the face sometimes wears an anxious expression.

A striking symptom that is of considerable diagnostic value is the extreme pallor that comes after the flushed condition of the first few days. The child is either white, as shown so well in the bloodless paper-like whiteness of the ears, or else it is a grayish, ashy white.

These children are commonly very sensitive to handling, and cry when approached, and especially when made to sit up or when lifted by the shoulders. This is probably due to the fact that there is often distinct tenderness over one or both kidneys. If the trouble is unilateral the child may wince or even cry out when the affected side is palpated. Often there is distinct muscular rigidity anteriorly over the kidney. The kidney itself is rarely palpable, partly because of the muscular rigidity and partly because it is rarely enlarged sufficiently. In cases in which the pelvis becomes distended, owing to temporary obstruction of the outlet, a considerable mass may be made out that may lead to a suspi-

* Read before the Englewood Branch of the Chicago Medical Society, Nov. 1, 1910.

1. Goschler: Paper published in 1871; quoted by Finkelstein. See Note 7.
2. Hirchsprung: Jahrb. f. Kinderh., N. F. 1883, new series, xix, 427.
3. Escherich: Ueber Cystitis bei Kindern, hervorgerufen durch Bact. Coli Commune, Mitt. d. Ver. d. Aerzte Steiermark, 1894, No. 5.
4. Holt, L. Emmett: Three Cases of Acute Pyelitis in Infancy, Arch. Pediat., November, 1904.
5. Trumpp: Jahrb. f. Kinderh., new series, xliv.
6. Heubner: Lehrbuch der Kinderheilkunde, 1903.
7. Finkelstein: Jahrb. f. Kinderh., new series, xliii.
8. Box: Lancet, London, 1908, i, No. 2.
9. Thompson (Edinburg): Clinical Examination and Treatment of Sick Children.
10. Fischer: Arch. Pediat., June, 1907.
11. Freeman: Arch. Pediat., March, 1905.
12. Morse: Arch. Pediat., 1902, xix, 461.
13. Zahorsky: Pediatrics, 1908, xx, 543.
14. Abt: Urinary Infection in Children, THE JOURNAL A. M. A., Dec. 14, 1907, p. 1972.
15. Friedenwald: Pyelocystitis in Infancy, Arch. Pediat., November, 1910.
16. Goeppert: Ueber die eitrigen Erkrankungen der Harnwege in Kindesalter, Ergebn. d. inn. Med. u. Kinderh., 1908, ii, 30.

cion of pyonephrosis or even appendiceal abscess. Colicky pains are not uncommon.

The course of the disease if untreated is essentially chronic. The temperature persists as a septic, remittent or even intermittent fever. These cases are often diagnosed as malaria, typhoid, food intoxication, or, if the nervous symptoms are marked, as is frequently the case, as meningitis, and later, when the condition shows no tendency to improvement, as a chronic tuberculosis of uncertain localization. In many cases the disease becomes distinctly intermittent; days, weeks, or even months of normal temperature and general well being, with rapid gain in weight, will separate periods of a week or of several weeks of high fever and all the other symptoms of a fresh acute infection. In one case that occurred early in my practice which I failed to diagnose, I had a favorable opportunity to observe this condition. Four or five distinct relapses or exacerbations occurred during a period of about four months, each lasting from one to three weeks with a general tendency to greater severity, and a more prolonged course in each new attack.

From the clinical course so far, it is evident that these cases do not differ sufficiently from other acute and chronic infections of various kinds so that they can be diagnosed readily from this alone. The positive diagnosis is made when pus is found in the urine. The amount of pus varies much in different cases and in different specimens from the same case. Commonly the urine appears turbid, sometimes even thick and milky. A nearly normal specimen may precede or follow one that is loaded with pus on account of a temporary obstruction of the ureter of the affected side. Microscopically, pus-cells singly and in clusters usually pack the field. Goeppert[16] has suggested an arbitrary minimum diagnostic standard of six to eight leukocytes in each field of an uncentrifuged specimen. Bladder and renal epithelium are present in varying degrees. Albumin is always found if there is enough pus. If it is out of proportion to the amount of pus, it speaks for an involvement of the kidney itself, a pyelonephritis. Casts are not found unless there is a complicating nephritis. The urine is almost invariably acid when first passed always in colon infections, and contains large numbers of long bacilli.

In some cases there is apparently a bacteriuria rather than a pyuria. In these the urine swarms with bacteria; usually colon bacilli and few pus and epithelial cells are found. In some of these, as in ten cases described by Mellin,[17] there were no constitutional symptoms, and one can hardly believe that we have here to deal with an inflammatory process, but rather with a simple multiplication of bacteria in a favorable medium. In others, which present constitutional symptoms, fever, pallor, loss of appetite, etc., as in ordinary pyelocystitis, there is doubtless a true inflammatory process with but little formation of pus. These cases are rare and little is known about them. I have seen one case that apparently came in this catagory. The child seemed clinically to have a severe case of pyelitis; the acid urine showed almost no pus but teemed with bacilli.

Frequent urination and tenesmus seem to occur in only a small proportion of cases and can hardly be accorded much, if any, diagnostic significance. In one case in which Thiemich found a marked cystitis at autopsy, no history of these symptoms was obtainable during life. When we consider furthermore how frequently mothers tell us that their babies "wet every few minutes" or that they cry before, during, or just after urinating, without any demonstrable lesion, it is evident that these symptoms are peculiarly unreliable in an infant.

When we sum up the clinical picture of this disease we are struck by the fact that the great majority of these infants give no single physical sign or symptom that points positively to the kidney or bladder as the site of the trouble, until we examine the urine.

17. Mellin: Quoted by Langstein in Pfaundler and Schlossmann's Handb. der Kinderh., first German edition, 1906, p. 578.

ETIOLOGY

Pyelocystitis is characteristically a female disorder. I have myself never seen it in a male infant. Goeppert,[16] whose statistics are relatively higher than those of others, but whose larger material has especial value, found 10 per cent. of his cases in boys and 90 per cent. in girls. In Finkelstein's[15] series 27 per cent. were males, showing that males are much more commonly affected than was formerly believed, or else, as seems more probable, that the conditions in a foundling home are different from those of private practice.

The great majority of these cases occur during the first year, with especial predilection for the second and third quarters of the first year (Goeppert[16]) or according to Finkelstein's[15] series the first quarter. After the second year they are relatively rare and probably approach the adult type.

This infection takes place more frequently during the summer months. This at once suggests a connection with summer diarrhea, and it is a significant fact, as will be seen later, that many of these cases are preceded by a food disturbance. Social status has less significance than one would expect, and I have been struck with the number of cases that occur in which the babies are under ideal surroundings as to care and cleanliness.

The *Bacillus coli communis* is the direct cause in the great majority of cases, in about 97 per cent. of both Escherich's and Goeppert's series. In the remaining cases one or the other of the common pyogenic bacteria is the cause.

PATHOLOGY

The pathology is still variously interpreted. Escherich[3] in his first paper considered the disease purely a cystitis. Finkelstein[7] and Trumpp[5] both retained this term but in a limited number of cases were able to demonstrate post mortem that the pelvis of the kidney was likewise involved. Heubner[6] first distinguished between a cystitis and a pyelitis and retains this classification in his text-book. Goeppert,[16] who has had apparently very few if any autopsies, chooses to call the disease "pyelocystitis with especial emphasis on the first syllables" and thinks that in most cases the pelvis and bladder are involved, but that the pyelitis is the important lesion in the great majority of cases, and that only exceptionally does a cystitis dominate the picture. Thompson[9] and Still[18] consider the disease a pyelitis. American authors commonly speak of the disease as pyelitis, or pyelocystitis. In twenty autopsies of Finkelstein's series fifteen cases showed involvement of both bladder and pelvis of the kidney; three of the pelvis, and one of the bladder alone.

A most valuable contribution to the subject has just been made by Thiemich[19] of Magdeburg. From a series of autopsies he establishes the fact that in a certain propor-

18. Still: Common Disorders and Diseases of Childhood, 1909.
19. Thiemich: Ueber die eitrigen Erkrankungen der Nieren und Harnwege in Säuglingsalter, Jahrb. f. Kinderh., September, 1910, 72 d. Dritten Folge, xxii, 243.

tion of cases there are found post mortem as the dominating lesion multiple, minute abscesses of the cortex of the kidney, sometimes radiating toward the pelvis as fine lines. He reports three autopsies in boys and three in girls in which this condition was present, and in which the inflammation of the pelvis or bladder was so slight that it was almost unrecognizable. The fact that he has found this condition so frequently post mortem does not establish its relatively frequent occurence, because it is only in these severer cases that patients die of the disease itself; the others do not come to the post-mortem table. Nearly half of the autopsies reported by Friedenwald[15] in Finkelstein's series belonged to this type, showing miliary abscesses in the cortex, and kidney substances, as well as a catarrhal condition of the pelvis and bladder.

From a pathologic standpoint there are, then, two types of the disease: 1. The great majority of the cases are catarrhal infections of the bladder and pelvis of the kidney; i. e., pyelocystitis. These are of all degrees of severity but are generally benign and occur almost exclusively among girls. This is the type commonly seen.

2. The severe type that affects children of lowered resistance, due to some infection or food disturbance, in which the cortex of the kidney is studded with miliary abscesses, and in which the involvement of the pelvis or bladder is of less importance; i. e., a pyelonephritis.

The pathogenesis offers an interesting field for speculation. The fact that nine out of ten of these cases, perhaps ten out of ten of the ordinary type of pyelocystitis, occur in females demands an explanation. If we combine this with the further facts that 97 per cent. of these cases are due to the colon bacillus, and that 60 per cent. of Goeppert's cases occurred during the first year, 80 per cent. during the first eighteen months, and 90 per cent. during the first two years, and 92.5 per cent. of Finkelstein's cases during the first year, i. e., during the diaper age, an explanation thrusts itself on us. If one bears in mind the extreme shortness of the infantile female urethra, and then sees such a little girl "changed" after she has had a very soft or liquid bowel movement that floods the vulva and is pressed against the urethral outlet, there is little difficulty in believing that colon bacilli are carried through the urethra to the bladder and there set up an inflammation that in turn is carried to the pelvis of the kidney. The frequent association of this disease with diarrhea adds to the plausibility of this view.

While an ascending infection of such an origin has seemed the most reasonable explanation of pyelocystitis, there can be little doubt that the cases of pyelonephritis described by Thiemich[19] and Friedenwald,[15] with cortical abscesses as well as catarrhal involvement, are of hematogenous origin. Whether this mode of origin plays any considerable part in the former type remains to be determined. It would be very instructive to know whether the colon bacillus is as frequent, relatively, in the cases of pyelonephritis as in those of pyelocystitis. A third possible source of infection has been suggested —that of direct migration of the colon bacillus from the intestinal to the bladder wall.

DIAGNOSIS

The diagnosis of pyelocystitis is made when a sufficient amount of pus is found in the urine, at least six to eight leukocytes, to the field of a non-centrifuged specimen. One must always remember that a single specimen may be nearly normal, and in every suspected case repeated examination should be made. The possibility of contamination with vaginal discharge or with feces must be guarded against in an infant. An exact anatomic diagnosis can hardly be made, since ureteral catheterization is not feasible. The milder cases may be a simple cystitis; the severer cases, with high fever and serious constitutional symptoms, are probably nearly all cases of pyelitis or pyelocystitis; the rarer severe cases which complicate other conditions, which do not yield to treatment, and in which a larger amount of albumin is found in the urine than one would expect from the amount of pus, probably belong to the type of pyelonephritis. An examination of the pus and epithelial cells gives but little if any practical assistance in an accurate anatomic diagnosis.

The greater difficulty in procuring a specimen of urine in an infant is one reason why urinalysis is more often neglected than in the adult. And yet this difficulty can always be overcome and is no excuse for a failure to examine the urine. Specific directions must be given to insure success. In the male child a rubber finger cot or condom can be left in place until the child urinates. In both sexes, in older infants, if the child is quickly placed on a chamber, after a long nap it will usually urinate. If this is not successful, the infant can be washed clean and left until it urinates on a clean rubber sheet or oil-cloth, so arranged that the lowest part is in the region of the buttocks. If there is a diarrhea, or if this method cannot be employed for some other reason, then the mother or nurse can watch the exposed baby, cup in hand, until the moment arrives when the urine can be caught. This may be tedious, but it is important. Finally, if these methods fail, or if one wants an uncontaminated specimen for bacteriologic examination, the catheter with proper aseptic precautions can be freely used, as urged by Hirschsprung[2] thirty years ago. The use of a mass of cotton cannot be recommended, as it is apt to sift out many of the pus-cells, and is otherwise not as serviceable as the other methods.

While a urinalysis is imperative for a positive diagnosis, in many cases after a little experience a fairly certain diagnosis can be made without it. A persistent high temperature in a female infant, sensitiveness, a striking ashy pallor, the occurrence of chills, with practically no physical findings to point to any localization, indicate with a great deal of probability a pyelocystitis. The utter disproportion between the severity of the disease and the physical findings is strongly diagnostic.

PROGNOSIS

In the ordinary type, that of pyelitis or pyelocystitis, which forms the great bulk of these cases, the prognosis is distinctly favorable. In some fifteen cases that I have seen no patient has died.[20]. In Goeppert's[16] cases, on the other hand, the mortality was 12 per cent., or, if one includes three cases in which the urinary infection was only partially the cause of death, and three others that left treatment in a critical condition, the mortality was even 20 per cent. Such a mortality requires qualification. The prognosis of these cases depends materially on the treatment. If the patients are untreated, the prognosis is bad; if they are properly treated, it is very good. Goeppert's cases were practically all among private office patients, the majority of these among the poorer classes, among whom a rigid, persistent treatment was impossible. His mortality statistics cannot therefore be applied to more favorable conditions.

20. Since writing this I have had a fatal termination in an infant of 3 months.

Friedenwald[15] speaks of twenty autopsies in Finkelstein's series of eighty cases, a mortality of 25 per cent. From the nature of the material probably only a proportion of the patients died of the disease itself. Deductions from the morbidity of a foundling asylum would not apply to private practice. The pyelonephritis cases offer a more gloomy prognosis, partly because of the seriousness of the lesion, partly because of the previous weakened condition of the child. These cases are not hopeless, however, since there is a natural tendency to arrest, resorption, and cicatrization of the little abscesses, and very little tendency to the formation of large abscesses that would require surgical treatment. It is hard to believe that these cases occur in any considerable number, and in general one is justified in saying that the prognosis of the urinary infections in early childhood is distinctly good as to life and cure, though many of them drag along for months.

TREATMENT

There is little that can be offered in the way of prophylaxis, except local cleanliness, the avoiding of diarrheas and infections and the maintaining of the general health at a high level.

After the disease is established the child should be kept quiet, its diet should be watched carefully, and it should be given an abundance of liquids, especially water or alkaline waters, to flush the urinary tract.

The English writers, especially Thompson[9] and Still,[18] give large doses of alkalies, especially potassium citrate, half a dram to a dram or more a day in divided doses. Thompson's[9] statement is well worth quoting:

> The main and the only essential treatment consists in rendering the urine neutral, when passed, by the administration of alkaline remedies, as speedily as possible, and in keeping it so until all the symptoms have disappeared. When this indication is thoroughly carried out, its good results are very remarkable. The pain and uneasiness rapidly vanish and the temperature falls to normal within three days. The pus cells also disappear. The bacteria, however, may persist for a long time after the pus has gone; but they seem to do no harm. . . . The alkaline treatment must be continued for a week or two at least, in spite of the depressing effect which it has on the child's general condition and the loss of appetite which it is apt to occasion. If it is stopped too soon the symptoms return.

Nearly all German and American clinicians depend on urinary antiseptics, hexamethylenamin (urotropin) and phenyl salicylate (salol), as of first value, and recommend alkaline drinks as of value in diluting and possibly alkalinizing the urine. Heubner[6] warmly recommends hexamethylenamin in doses of 1 to 2 grains three times a day. Finkelstein prefers salol. Goeppert uses salol in all acute cases, in doses of 1 to 3 grains five to eight times a day for ages varying from two months to two years, and finds, "as early as thirty hours after its administration a decided improvement in the general condition." After the acute stage he uses hexamethylenamin and throughout urges the ingestion of large amounts of water, especially alkaline waters, even giving it by gavage and enema if not well taken by mouth. He expects a cessation of fever and of discomfort in the first two or three weeks and a pus-free urine in five weeks, and maintains that many cases get well in five to eight days.

Such rapid improvement has not been the rule in my own experience. Many of the cases drag along for months, often with distinct intermissions, in spite of any treatment. Ultimately the patients are cured clinically, in nearly all cases. My own procedure is to crowd water in every way, to try alkalies first, and if there is not a decided improvement in a few days, to substitute hexamethylenamin, or salol in doses of 1 to 2 grains every three or four hours to an infant 1 year old and to keep this up for a long time to avoid the relapses that are only too common.

The severer cases with cortical abscesses, of course, are influenced but little by any of these remedies. They require also treatment of the underlying condition and general tonic and supportive measures.

In conclusion, permit me to emphasize the one important point in the subject that I have discussed: In every child, and especially in every female infant, that has a continuous or intermittent high temperature, the cause of which is not clinically obvious, an examination of the urine for pus is imperative.

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THE ESOPHAGOSCOPE IN REMOVING SHARP FOREIGN BODIES FROM THE ESOPHAGUS

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The impaction of sharp foreign bodies in the esophagus is of comparatively frequent occurrence, but the rational treatment thereof—the extraction by esophagoscopy—has apparently not received the attention that it deserves.

The esophagus at times seems remarkably tolerant to the presence of foreign bodies; in some instances such bodies have remained in the organ for years. On the other hand, cases are on record in which death has followed in twenty-four hours after the accident.

Any foreign body lodged in the esophagus should be promptly removed, but I wish particularly to call attention to the danger of procrastination when we have a sharp foreign body to deal with.

It has been my fortune to relieve a number of patients who have accidentally had foreign bodies impacted in the esophagus. Those which I have extracted have been of various kinds, but pieces of bone have impressed me as being particularly dangerous.

SYMPTOMS AND TREATMENT

Pain and difficulty in deglutition and tenderness of the neck, with rise in temperature, are the main symptoms of a sharp foreign body in the cervical part of the esophagus. If a perforation of the esophageal wall has taken place in the cervical part there will be an emphysematous condition of the neck. When the foreign body has become impacted in the thoracic part of the esophagus there may be pain and difficulty in deglutition, but it must be kept in mind that there may be no symptoms whatever until perforation takes place.

As the first step in treatment, the pharynx, the pyriform sinus and the inlet of the esophagus is anesthetized with a 10 per cent. solution of cocain, and the esophagoscope, without the obturator, is introduced under the guidance of the eye. When the foreign body comes into view its position is noted, and with a special forceps it is carefully dislodged and extracted. Esophagoscopy generally ought to be done without the aid of an obturator, in order to enable the operator to inspect the entire tract through which the instrument passes, but that is a matter of choice. In case of sharp foreign

bodies, however, the obturator must never be used, because damage may be done to the wall of the esophagus by pushing on the sharp foreign body. For the same reason the bougie, the probang, and similar instruments must be condemned. It will readily be seen that additional injury might be done in a case like my Case 2, reported below, the actual condition of which is pictured in Figure 6, if an instrument is introduced blindly. The use of a sound or bougie for diagnostic purposes may be deceiving, as these instruments, in several instances, have failed to demonstrate the presence of even a large foreign body. The forceps used for the extraction of foreign bodies belongs to a set of instruments, which I have

Fig. 1.—Piece of mutton-bone (actual size) removed from patient's throat (Case 1).

Fig. 2.—Beef-bone (actual size) removed from patient's throat (Case 2).

devised for esophagoscopic and bronchoscopic work.[1] When the foreign body has been caught in the forceps the instrument can be locked.

It may be necessary to cut or break the foreign body before it can be extracted, and for that purpose Kahler's forceps is useful. Thus a tooth-plate impacted in the esophagus can be reduced in size by cutting with Kahler's forceps, or it can be burnt through by a specially made galvanocautery point or snare.

The accidental swallowing of an open safety-pin is not infrequent. The pin enters the esophagus with the point upward, and traction on the pin in the latter direction would naturally force the point into the esophageal wall. For the purpose of closing the open safety-pin *in situ* and extracting it through the esophagoscope I have devised an instrument shown in Figure 7. The instrument is introduced with the wire loop C withdrawn. When the latter is below the safety-pin the wire loop is pushed out by pressing the lever on the handle and pulled up on the open pin. The steel wire B with the hook D on the distal end is now pushed down and turned on to the pin, after which the loop is closed, locking the pin. The steel wire with the hook prevents the safety-pin from slipping up when the loop closes in on it.

If the foreign body has perforated the wall of the esophagus and caused a periesophageal abscess in the

Fig. 3.—Fish-bone (actual size) removed from patient's throat (Case 3).

Fig. 4.—Fish-bone (actual size) removed from patient's throat (Case 4).

cervical part, the use of the esophagoscope is contraindicated. Such an abscess must be dealt with from without, and as early as possible in order to prevent the burrowing of pus into the posterior mediastinum. If the foreign body has perforated the thoracic part of the esophagus and caused a mediastinal abscess, the use of the esophagoscope is imperative before opening the mediastinum in order to determine on which side the abscess is located. A case illustrating this point is reported in recent German literature, in which the posterior mediastinum was entered without finding the abscess. Post mortem the abscess was found to be in the mediastinum on the opposite side. It was shown that this could have been determined by esophagoscopic examination before the operation.

To perform esophagotomy in case of impacted foreign body, before extraction by the esophagoscope has been tried, is not justifiable for the reason that esophagotomy for the removal of foreign bodies has considerable mortality. In 326 cases of external cervical esophagotomy for the removal of foreign bodies collected by Balacescu and Kohn,[2] the mortality was as follows:

In the pre-antiseptic era (prior to 1880)	26.5 per cent.
In the transitional stage (1880-1890)	27.8 per cent.
In the antiseptic era (1890-1900)	17.8 per cent.
In the aseptic era (1900-1903)	12.6 per cent.

Nauman[3] has later collected forty additional cases with a mortality of 17.5 per cent.

REPORT OF AUTHOR'S CASES

CASE 1.—Mrs. F. T., aged 45, had swallowed a piece of mutton-bone which lodged in the throat forty-eight hours previous to consultation. Swallowing had been very painful since. Esophagotomy had been advised before the patient was referred to me. The neck was very tender on palpation, especially on the left side. No emphysema of the neck. Temperature was 102 F. After cocainizing the throat the esophagoscope was introduced and the bone found in a slanting position in the middle of the cervical part of the esophagus, the lower end being embedded in the mucosa. The bone was

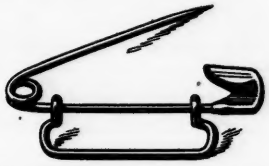

Fig. 5.—Safety-pin (actual size) removed from patient's throat (Case 5).

grasped by the forceps and quickly extracted. It was 2 cm. in length and very sharp at both ends (Fig. 1). Recovery ensued.

CASE 2.—Mrs. L. A., aged 58, while taking her evening meal three days previously to consultation, had swallowed a piece of beef-bone, which stuck in her throat. The neck was very tender to touch, more so on the right side, and the patient suffered great pain on swallowing. There was no emphysema of the neck. The temperature was 103 F. Through the esophagoscope the bone was seen crossways in the lower cervical part of the esophagus, with both ends buried in the wall (Fig. 6). When it was extracted foul-smelling pus welled up from the right wall. The piece of bone measured 18 mm. in length, was rough and sharp at both ends (Fig. 2). Pus discharged through the mouth for some time. On esophagoscopic examination a few weeks later the abscess cavity, which evidently had been in the submucosa, had closed. Recovery ensued.

CASE 3.—A. J., aged 65, had had a fish-bone lodged in his throat eight hours previous to consultation. Some blood came up shortly after the accident. Deglutition was painful. No emphysema of the neck existed. Esophagoscopic inspection disclosed the fish-bone in the lower cervical part of the esophagus. It was removed by forceps. The lower end of the bone was engaged in the mucosa. It was quite stout, sharp, and 16 mm. long (Fig. 3). Recovery occurred.

CASE 4.—C. D., aged 25. A fish-bone lodged in the patient's throat seven hours previous to consultation. Deglutition was quite painful. There was no emphysema of the neck. Esoph-

1. Illustrations of these instruments appeared in my article, Contribution to the Surgery of the Esophagus, Surg., Gynec. and Obst., October, 1910.

2. Balacescu and Kohn: Arch. f. klin. Chir., 1904, lxxii, 408.
3. Nauman: Deutsch. Ztschr. f. Chir., 1906, lxxxiii, 479.

agoscopy revealed a bent fish-bone, with the convexity upward, in the cervical part of the esophagus. The bone was easily extracted (Fig. 4). Recovery.

CASE 5.—A girl, aged 2, swallowed an open garter safety-pin four hours previous to consultation. The child was crying constantly. Respiration was normal. The esophagoscope was introduced without the administration of an anesthetic, and the lock end of the pin was seen at the inlet to the esophagus with the point imbedded in the anterior wall. The point was dislodged and the pin extracted (Fig. 5). Recovery.

In the first four of these cases the foreign bodies were removed quite readily. Case 5, on the other hand, was very difficult, because the safety-pin was a large one with a strong spring; furthermore, the point was well

Fig. 6.—Piece of beef-bone, 18 mm. in length (shown in Fig. 2), lodged in patient's throat (Case 2).

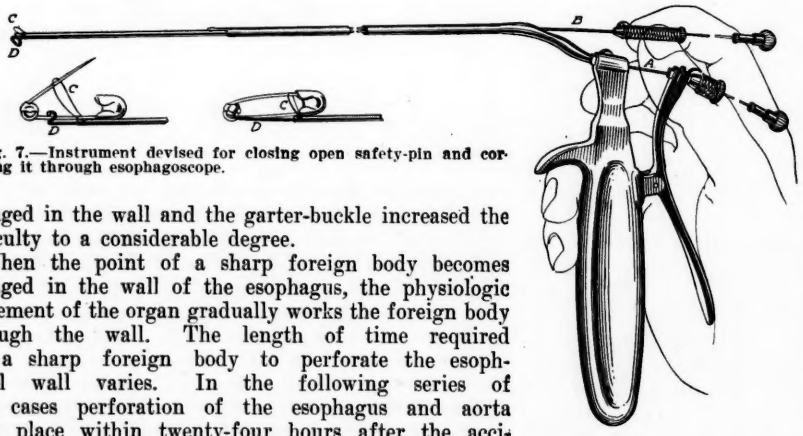

Fig. 7.—Instrument devised for closing open safety-pin and correcting it through esophagoscope.

engaged in the wall and the garter-buckle increased the difficulty to a considerable degree.

When the point of a sharp foreign body becomes engaged in the wall of the esophagus, the physiologic movement of the organ gradually works the foreign body through the wall. The length of time required for a sharp foreign body to perforate the esophageal wall varies. In the following series of 200 cases perforation of the esophagus and aorta took place within twenty-four hours after the accident in two cases; in eight cases the esophagus and the aorta became perforated in from five to ten days after the accident. There have been no deaths among the patients whom I have treated.

CASES FROM THE LITERATURE

In order to ascertain the fate of swallowed foreign bodies in a larger number of cases, I have collected reports of 200 cases from literature since the year 1900. In these my own cases are not included.

The mortality in the 200 cases was 12.5 per cent (twenty-five deaths), of which twenty-three deaths, or 11.5 per cent. were due to perforation of the esophagus with its consequences.

The seat of perforation was:

Upper thoracic part in	15 cases
Cervical part in	5 cases
Lower thoracic part in	1 case
Location not mentioned in	2 cases

(The aorta was perforated in twelve cases, and the common carotid artery in one case.)

The foreign bodies causing perforation and death were:

Piece of bone in	10 cases
Pins and needles in	4 cases
Coin in	3 cases
Fish-bone in	2 cases
Tooth-plate in	2 cases
Iron-washer in	1 case
Brooch in	1 case

Splinters of bone caused the highest mortality in the cases collected by me, and in the series of Balacescu and Kohn, above referred to, twenty-two patients out of seventy-nine who had splinters of bone impacted, died after esophagotomy.

There were no deaths in the forty-seven cases in which the foreign body was removed by esophagoscopy except one, in which previous attempts had been made to extract the bone with the coin-catcher. These attempts had caused a long rent in the wall of the esophagus followed by mediastinitis and death.

There were forty-one different kinds of foreign bodies, of which the following were the most frequent:

Tooth-plate in	41 cases
Piece of bone in	34 cases
Coin in	26 cases
Pins and needles (common pins, scarf-pins, hat-pins, darning-needles, etc.)	22 cases
Open safety-pin in	18 cases
Fish-bone in	4 cases
Metal whistle in	7 cases
Metal button in	5 cases
Piece of wood in	4 cases

The location of the foreign body in the esophagus was mentioned in 118 cases as follows:

Cervical part in.....58 cases
Upper thoracic part in 33 cases
Lower thoracic part in 27 cases

Tooth-plates were the most frequent foreign body impacted in these series. Nine tooth-plates were passed per rectum, thirteen were removed by esophagotomy, eleven by esophagoscopy, five by gastrotomy, etc.

In several of these cases the plate had remained in the esophagus for many months, which illustrates what a remarkable tolerance the organ occasionally will exhibit. In one case a tooth-plate remained above the cardia for several months without symptoms, then distress and pain occurred. Death followed operation. In another case the plate remained in the esophagus for eighteen months before it perforated the bronchus; after operation, death occurred. Another patient was relieved of an impacted tooth-plate eleven months after by combined gastrotomy and esophagotomy. One case is reported in which a tooth-plate remained in the upper thoracic part of the esophagus for four months, causing a perforation into the trachea. The plate was then extracted and gastrostomy performed.

The tracheo-esophageal fistula subsequently healed. Recovery.

The methods of treatment used in these cases collected by me were:

Esophagoscopy in	47 cases
Esophagotomy in	27 cases
Gastrotomy in	10 cases
Esophagotomy and gastrotomy in	2 cases
Esophagotomy and esophagoscopy in	1 case
Coin catcher in	12 cases
Probang in	5 cases

The longest time a foreign body remained in the esophagus before being successfully extracted was four years. In one case a coin remained four and one-half years in the esophagus; then it caused perforation and death.

The youngest patient on whom esophagoscopy was performed was 4 days old (extraction of a rubber nipple). The oldest patient on whom I personally have performed esophagoscopy was 86 years old.

Besides the twenty-three cases of perforation of the esophagus in these series, there were eighteen cases of perforation of the abdominal or pelvic viscera, with two deaths.

CONCLUSIONS

1. Esophagoscopy is not a difficult procedure, and it gives the best results in the treatment in these cases, with the least discomfort to the patient.
2. The use of instruments in the esophagus, except through the esophagoscope, in case of sharp foreign body, should be abandoned.
3. In every case in which the swallowed foreign body is not recovered, an esophagoscopic examination of the esophagus should be made.
4. Even if the foreign body is successfully pushed into the stomach, the patient is not entirely beyond danger.

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GRAVES' DISEASE

A NEW PRINCIPLE OF OPERATING BASED ON A STUDY OF 352 OPERATIONS *

G. W. CRILE, M.D.
CLEVELAND

Among 219 operations for colloid goiter and benign tumors I had two deaths, one from suppression of urine, the other from myocarditis after healing had occurred. I shall not allude to the malignant and infection cases. My study is of 121 operative cases of exophthalmic goiter, particularly an inquiry into the cause of operative hyperthyroidism, and into the development of a safer technic.

CHANGES IN THE BRAIN CELLS IN A CASE OF GRAVES' DISEASE

In a case of Graves' disease, the patient being unoperated on and free from infection, which ran a natural course to its termination in death, a pathologic examination of the brain and cord was made by Dr. J. B. Austin. The following is his summary:

In the cord but slight changes were seen; in the medulla there was considerable chromatolysis, the Nissl granules were in moderately fine division, and the nucleus plasma relation was changed; in the cerebellum approximately 30 per cent. of the Purkinje cells were seriously altered and many were destroyed; in the cortex there was marked chromatolysis, the nucleus plasma relation was disturbed and many cells were destroyed. A detailed report will be made elsewhere.

THE CAUSE OF THE SPECIFIC REACTION—HYPERTHYROIDISM—FOLLOWING OPERATION FOR GRAVES' DISEASE

In operations in exophthalmic goiter, the principal risk is an acute exacerbation of the disease, usually called hyperthyroidism, the most conspicuous symptoms being tachycardia, high fever, restlessness, tremor, and finally delirium. Against this risk there is at present no known specific remedy. Were it not for this uncontrollable outburst, the operative risk would be but slight. Surgeons agree that there is a group of cases so severe that an adequate operation cannot by any method be performed safely. It is the purpose of this paper to present a new principle of operating whereby this group of cases may, I hope, be reclaimed. If we are to operate safely we must change our method. To this end we shall first inquire into the cause of the acute hyperthyroidism produced by the operation itself. Resolving the operation into its principal component parts, we have the rôle played by (1) hemorrhage; (2) infection; (3) manipulating and cutting the thyroid; (4) the anesthetic; (5) the psychic disturbances; and (6) the operative trauma to tissue other than that of the thyroid, as factors in the consideration of hyperthyroidism.

HEMORRHAGE AND INFECTION

I have seen acute outbursts of Graves' exacerbation follow a bloodless technic in lobectomy and in simple ligation. Hemorrhage is not, then, an adequate cause.

Infection almost never occurs; Graves' exacerbation frequently occurs. Infection may be excluded.

ABSORPTION OF THYROID SECRETION FROM HANDLING OR CUTTING THE THYROID TISSUE

Patients with exophthalmic goiter are abnormally susceptible to thyroid extract. Serious exacerbation and death have followed a single therapeutic dose of the extract. May there not be an increased absorption of thyroid secretion produced by cutting or handling the thyroid? If so, the secretion must be liberated either by manipulation of the gland or by its discharge from the cut surface. In a serious case I have known the patient to be repeatedly and thoroughly massaged by an osteopath without producing a marked increase in the symptoms. I have never observed an exacerbation follow the physical examination of the gland. In the first instance—the massage—at least, there was certainly more mechanical disturbance than was caused by the very gentle manipulation of the gland in the ligation of a single superior thyroid artery in one emaciated patient, when there followed a fatal outburst of hyperthyroidism. Moreover, Kocher, the creator of the surgery of the thyroid, as a routine measure crushes with a heavy forceps a zone of the gland prior to its ligation and division. He notes no increased hyperthyroidism resulting. In several excisions, in which other factors were excluded and in which there was a certain amount of handling, but trifling reaction followed. At least gentle handling must therefore be but a minor factor.

Is there an increased discharge and absorption of the thyroid secretion from the cut surface of the gland? I

* Read in the Section on Surgery of the American Medical Association, at the Sixty-First Annual Session, at St. Louis, June, 1910.

have seen no diminution of reaction when the cut surface was immediately treated with pure phenol and alcohol; when immediately seared over with the actual cautery; when the division was made between ligatures; and when the wound was left open and the raw surface was covered with a large gauze pack. On the other hand, I have seen the usual reaction when there was no raw surface left in any part of the wound; and finally I have seen no more reaction when the presumably preventive measures were all omitted. It would appear, then, that the "raw surface" and "squeezed juice" hypothesis do not adequately explain operative hyperthyroidism.

THE ANESTHETIC

Kocher and his school operate under local anesthesia, believing that despite the ordeal there is less reaction following. Mayo and many other Americans use general anesthesia. At first glance it might seem that one or the other method should be the better and should be the method of choice. It can be shown later, I believe, that each has its own field, and that neither can supplant the other.

In several desperate cases, in which the margin of safety of the patients was tested by anesthetizing, without the patients' knowledge, with ether or with nitrous oxid, there was a moderate though short exacerbation of Graves' symptoms following both modes of anesthesia, though more marked in the case of ether. In all cases there is, during the transit from primary to surgical anesthesia, a stage of unpreventable subconscious excitement during which the heart-beat is quickened, respiration is accelerated and in which muscular disturbances may occur. Test doses of morphin and scopolamin, though in certain respects unfavorable, have produced no corresponding exacerbation of symptoms. In severe cases, on the other hand, ligation of the upper poles under local anesthesia, with exclusion of the psychic factor, caused no appreciable reaction. Hence I conclude that general anesthesia, *per se,* contributes a minor factor, and local anesthesia, *per se,* no factor in the production of the specific reaction in Graves' disease.

PSYCHIC FACTOR

Fear may temporarily paralyze normal animals and men. Even death has been caused by fear. It occurred to me that the brain-cells of an animal in intense fear might show physical changes. Accordingly Dr. J. B. Austin and Dr. H. G. Sloan made such observations for me on frightened rabbits. A study of the central nervous system showed the following:

> **The cells of the brains that were secured in the midst of fright showed marked hyperchromatism; those that were taken several hours later showed marked chromatolysis, a disturbance of the nucleus plasma relation, and some broken-down cells. The spinal cord showed but slight changes, the medulla more and the cerebellum and cerebral cortex most. These experiments will be elsewhere reported in detail.**

The potent influence of the psychic factor in exophthalmic goiter is admitted. This factor alone has caused death in serious cases under both medical and surgical auspices. However, if the surgeon has permission to use his discretion as to the fact as well as to the time of operation, the dangerous psychic factor may be eliminated. The employment of the technic, which will be elsewhere described, by which the exclusion of the psychic factor is effected, enables the surgeon to operate with less reaction in the "fair risks" and to undertake successfully more serious risks, but serious reactions are often seen despite the total exclusion of the psychic factor.

Recapitulating, then, it may be stated that the specific reaction or hyperthyroidism following operation is not due to hemorrhage, to infection, or to an excessive absorption of thyroid secretion from cutting or at least gentle handling of the gland; that it is somewhat influenced by the general anesthetic and markedly influenced by the psychic factor. There still remains the occurrence of specific Graves reaction not accounted for by the factors thus far considered. The only other factor left is the operative trauma of the tissue of the thyroid, and all other tissue as well.

Is the reaction in Graves' disease in cases of trauma of other parts of the body different from that of the normal organism? Barton Cooke Hirst collected and studied reports of 71 operations on various parts of the body other than the thyroid gland in patients suffering from Graves' disease. Many were minor operations, and on the whole the operative risk, had the patients not had Graves' disease, could not have been over 1 per cent. The mortality rate was over 15 per cent. The cause of death in every instance was hyperthyroidism. This table shows that the surgical risk in Graves' disease is as great in operations on other parts of the body as on the thyroid itself, and that the cause of the so-called hyperthyroidism must be found outside of the thyroid gland. My personal cases show a remarkable reaction to trauma. In one patient—a seriously sick one, it is true—a simple hypodermic injection of salt solution, given as a test, caused a psychic storm attended by a leap of the pulse from 140 to 186, with acute cardiac dilatation, trembling, sobbing, rise in temperature, almost overwhelming the patient and lasting over four hours. This is typical though extreme. An analysis of the phenomena will disclose the remarkable fact that the reaction from the mere prick of a sharp needle was perhaps greater than that following a hysterectomy or an amputation in the normal individual, perhaps a thousandfold greater reaction than normal. This is another way of saying that patients with exophthalmic goiter are hypersensitive to trauma just as they are hypersensitive to fear; and fear and trauma are phylogenetically close akin. Possibly this is the master key to our problem.

Arguing from the foregoing hypothesis, I then devised a technic for simple ligation and for excision. A careful inventory is first made of the pathologic physiology of each case. This usually requires several days. During this time a concerted effort is made by nurses and staff to instil hope and confidence into the patient. After such study of the case the type of operation—simple ligation or excision—is decided on.

If excision is to be the procedure the following routine is approximately followed:

> **The patient's reaction to small doses of morphin and scopolamin is ascertained. Daily inhalations, which are presumably for some medicinal purpose, but which are precise rehearsals of ether anesthesia, are practiced by the anesthetist, Miss Hodgins. Ether is tentatively dropped on the inhaler along with the volatile oils, and the patient is cautiously, without her knowledge, tried out as to ether anesthesia—sometimes is completely anesthetized—all this in her own bed. The results are then studied and if the patient seems unsuited for the operation of excision, ligation is done as later described. If the central nervous system and heart take the practice march well, the entire operation is then performed as follows: Long previous consent to an operation having been obtained, the patient is given morphin and scopolamin on the appointed morning, is kept absolutely quiet, is then gently**

Fig. 1.—Experiment 87. From a case of exophthalmic goiter. The cell has lost almost all its chromatin. The nuclear membrane is ruptured and the nucleolus is breaking down.

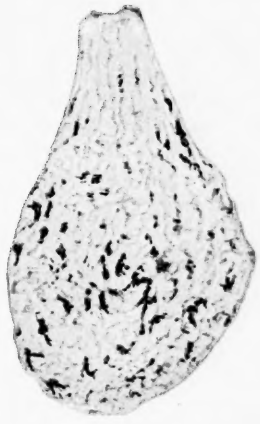

Fig. 2.—Experiment 87. Completely exhausted Purkinje cell. Nucleolus is broken down and the cell is greatly increased in size. From a case of exophthalmic goiter.

Fig. 3.—Experiment 87. Pyramidal cell from the motor cortex in a case of exophthalmic goiter. Marked loss of chromatin; ruptured nuclear membrane, and a nucleolus which is beginning to break down.

Fig. 4.—Experiment 87. From a case of exophthalmic goiter. Pyramidal cells from the motor cortex. A completely exhausted cell; no chromatin present. The nucleus and the nucleolus have entirely broken down and disappeared.

ILLUSTRATING ARTICLE ON GOITER BY DR. G. W. CRILE, CLEVELAND, O.

XUM

anesthetized to the second stage, in bed as before, and is at once taken to the operating-room, where nitrous oxid is substituted for ether. The operative field is as completely cocainized as if no general anesthesia were being given. First the skin and fascia of the opposite side, are incised about one inch. Through this incision, by means of a full curved needle, the upper pole of the gland (Stamm) and all of the overlying tissue inclusive are firmly ligated. Then in the gentlest possible manner the opposite lobe is excised bloodlessly, absolutely avoiding traction on any uncocainized sensitive tissue—precisely as if the patient were awake. After the operation the utmost care is exercised to keep down to a minimum psychic and painful stimuli.

If simple ligation is to be done quite another technic is followed, namely:

After the patient is easy and comfortable under morphin and scopolamin, and not before, I tell her all that she will probably experience. Everything being in readiness—skin, fascia, and muscles—a transverse distance of an inch overlying the upper poles of each thyroid is carefully cocainized. An incision is then made through the skin and fascia, a full curved needle is swept from without inward in such a manner as to include the upper pole of the thyroid, as well as all other structures lying between the bottom of the incision and the larynx. This ligature is then tied and a superficial stitch or two closes the skin. A similar procedure repeated on the opposite side completes the double ligation. It is helpful to chat with the patient meanwhile. The operation is performed on the patient in bed.

The twelve operations performed on this principle are in a class by themselves as to the operative reaction. Even in a case in which the patient's entire body was edematous and the terminal stage of the disease had been reached, the reaction was slight. The technic as a whole is difficult to carry out perfectly. In the strict surgical sense every case by this method is operable at least to the extent of a ligation, though the lesion of the heart and brain may be so extensive as to preclude a final cure.

Granted we have mastered the operation, have we thereby mastered the disease itself? The disease, I believe, may be cured in one or more ways: (1) if the brain cells are sufficiently repaired by absolute rest; (2) if the nerve connection between the brain and the thyroid be interrupted in part by tying the upper thyroid poles, which include half or more of the nerve supply; or (3) if the secreting structure of the thyroid be diminished by partial excision or by cytolytic serum (Beebe's).

Of these three methods excision is the most effective. The immediate relief to the patient following excision is one of the most striking clinical phenomena in surgery.

I therefore conclude that in exophthalmic goiter a pathologic reciprocal interaction between the brain and the thyroid gland exists, and that this reciprocal interaction can be maintained through a nerve connection only. How else could a psychic or a traumatic impulse reach the thyroid and influence its secretion than through a nerve connection or possibly by a hormone action? Many glands of the body respond to adequate psychic and mechanical stimuli. A familiar example is the salivary gland, whose secretion may be excited by the thought of palatable food (psychic), or by the presence of a neutral foreign body—a piece of wood, a pebble, or dental instrument (mechanical). It is generally believed, as opposed to the preceding statement, that the benefit following ligation of the superior thyroid artery is due to the diminution of the blood-supply. In Graves' disease the thyroid, like the placenta in an abdominal pregnancy, builds up a great mass of blood-vessels from the neighboring tissue, especially from the trachea and larynx, so that the superior thyroid not only constitutes a minor part of the blood-supply, but the rich anastomosis revascularizes, probably within a few days, the anemic zone produced by ligation. Then, too, how slightly, as observed in the course of operation, is the hemorrhage diminished by ligation of the superior thyroid artery alone? Simple ligation of the superior thyroid, as it seems to me, is an inadequate explanation of the vast clinical transformation, sometimes lasting months, or even years, following ligation, especially when we take into account the fact that much of the nerve-supply to the thyroid gland enters along the walls of the blood-vessels, and that in ligating the vessels the nerve-supply must be included. May it not well be that the entire mechanism—the cause, the exacerbation and hence the cure—will prove to have a nervous setting and that the thyroid hypersecretion is no more the cause of the disease than is saliva the cause of the psychic phenomena attending the thought of food? Whatever may be the explanation, I draw no conclusion at present.

SUMMARY

The principal points presented in this paper may be summarized as follows:

In one fatal case of simple exophthalmic goiter the brain-cells were found to be widely and extensively affected. Pure fear caused physical lesions in the cells of the rabbit's brain. The principal cause of so-called hyperthyroidism incident to operations on cases of Graves' disease is the adequate psychic and traumatic stimuli, both of which are phylogenetically closely akin; the psychic stimuli may be excluded by special orienting and the traumatic stimuli by an absolute cocainization of the operative field. By a combination of both local and general anesthesia, ligation and excision may be safely done. The value of ligation probably lies mainly in its breaking part of the nerve connection with the brain. The value of excision is the diminution of the total quantity of the gland secreting structure and the breaking of the nerve supply as well.

Between the brain and the thyroid gland in Graves' disease a pathologic reciprocal interaction seems to exist. Patients in Graves' disease are specifically hypersensitive to trauma, to psychic stimuli and to thyroid secretion. When operated on and then immediately returned to the environment that originally produced the disease they frequently relapse. Patients operated on and then given a prolonged rest-cure, which alone can repair the damage to the brain-cells, are nearly all cured. It requires approximately the same length of time to recover from exophthalmic goiter as it does to recover from a nervous breakdown from other causes. A combination of surgery and an adequate rest-cure is, as I believe, the method of choice and will cure most patients.

My thesis is that the explosive exacerbation after operation is not due to the commonly accepted cause, such as escape of thyroid secretion into the circulation, but is due to injury to tissue and to fear, and that it may be prevented by excluding the psychic factor and by blocking the nerve-supply of the field with local anesthesia so that no impulse arising from injury of the operation can reach the brain. By this method even patients with advanced and otherwise hopeless cases of Graves' disease, abandoned by both the internist and the surgeon, may be operated on with safety and prepared for the maximum benefit from a rest-cure.

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ABSTRACT OF DISCUSSION

DR. A. J. OCHSNER, Chicago: The work which Dr. Crile has done in connection with exophthalmic goiter, and the particular points he has mentioned this morning, are of sufficient importance to be borne in mind by all who deal with this condition. Especially is it important for us to remember that many of the conditions, which we formerly considered of most importance as causes of postoperative hyperthyroidism, are really of no special importance. In exophthalmic goiter we have a very severe destructive condition, which is due to the hyperthyroidism to which the patient has been exposed. Undoubtedly, most human beings are capable of neutralizing a certain amount of hyperthyroidism without having the tissues of the nervous and circulatory systems materially affected. In our normal bodies there is a condition of balance, so that the destructive effect of hyperthyroidism is not apparent. On the other hand, let one of us become exposed to an unusual strain of the nervous or physical system and immediately this balance may be destroyed and we may show the effects of this hyperthyroidism, particularly in the heart and nervous system. Tachycardia and the other well-known symptoms may appear. When we come to operate on these patients suffering from exophthalmic goiter, we deal with a condition of poisoning of these important structures, and by the addition of a very slight amount of further poisoning the balance is entirely overthrown. Whether in any given case this can be occasioned by the mental condition, or by a slight physical trauma, or by expressing into the tissues in the region of operation a certain amount of thyroid fluid, we do not know, but we do know that when the patient is overburdened with one or several of these conditions hyperthyroidism results. Any one of these conditions may produce an additional amount of hyperthyroidism, which makes the operation a dangerous one. It is only by eliminating, so far as possible, all the additional burdens placed on the patient that we avoid danger, and unless we do so we are bound to get the effect of excessive hyperthyroidism. I have discarded the operation under local anesthesia entirely except for the ligation operation. Möbius claims that the mental strain of local anesthesia is greater than the physical strain of general anesthesia, which seems reasonable, and in my work I have actually found that general anesthesia is harmless to the patient. The manner in which we accomplish this is to anesthetize the patient absolutely with ether given by the drop method; then we place her in the inverted Trendelenburg position, so as to produce an anemia of the brain, and perform the operation without giving any further anesthetic. The patient does not complain of any pain or discomfort afterward. In this way we protect the patient against two of the sources of physical and mental depression, and I believe that we have succeeded in that way in eliminating hyperthyroidism to the greatest possible extent.

There is one other point which Kocher brought out, namely, that of local absorption, and in two instances in which I did not provide for free drainage, there was hyperthyroidism. The thing I wish to impress on you particularly is that we must not try to eliminate this, or that, or the other cause, but that we must eliminate every possible cause that might do harm to anyone.

DR. ARCHIBALD MACLAREN, St. Paul: Dr. Crile is correct in his statement that the element of fear enters very markedly into the dangers of the operation for exophthalmic goiter. Whether other causes, such as hyperthyroidism, may or may not play a rôle, fear is a very decided element, and without doubt increases the mortality of the operation cases. I have employed Dr. Crile's suggestion of putting the patient to sleep without her knowledge, and since then I have not seen any hyperthyroidism. By not letting the patient know when the operation is to be performed, and by giving a volatile oil preliminary to the anesthetic as a "treatment," say the day before, and gradually coming to the administration of ether, the patient is anesthetized without her knowledge and, I am sure, does much better.

DR. MARTIN B. TINKER, Ithaca, N. Y.: Dr. Crile manipulates the gland very carefully and skilfully, and this undoubtedly has been a factor, and an important one, in his results. I would like to bring up one or two points in this connection: Dr. Crile states that he has not seen hyperthyroidism resulting from handling of the gland. I have in my records several cases of hyperthyroidism from handling during examination; in one patient in particular the temperature went up to 103 F. after examination only, and I believe with no other factor than the handling to account for it. A second point brought out by Dr. Ochsner is the importance of drainage. I do not know any man who does much of this work who does not provide for proper drainage. If the dangerous symptoms after operation are from psychic causes only, why should we drain?

Another point which deserves extra emphasis is the preliminary careful examination of the patient. Success in the severe forms of exophthalmic goiter depends very largely on our ability to estimate what the patient can stand. I have been accustomed not only to do the preliminary ligation, but to divide the operation, if necessary, into several stages. In certain cases I have operated in as many as five stages, first ligating the superior thyroid, then exposing the gland, next removing the gland, then closing the wound, and in certain cases I have added another step, that of ligating the inferior thyroid vessels before removing the gland. Since attempting this stage operation I have done over one hundred consecutive thyroidectomies in bad cases of exophthalmic goiter without loss of life. I believe that this factor, the careful estimation of the condition of the patients, doing just what they can stand and no more, is extremely important.

Dr. Crile implies that general anesthesia is used by Dr. Mayo, but all who have seen him operate know that Mayo now uses local anesthesia in many of his ligations. I believe that local anesthesia is a very important factor in eliminating shock, and that with efficient local anesthesia it is unnecessary to use general anesthesia, at least in the majority of the cases. My experience since trying to estimate the severity of my cases more carefully and doing the operation in stages leads me to believe that these with local anesthesia are the most important factors in the results.

DR. WILLIAM R. CUBBINS, Chicago: We ought to consider this thing from another standpoint, remembering its close association with the islands of Langerhans, the suprarenal capsule, the sympathetic system, and the hypophysis. The removal of the gland must be carefully considered, along with the mental effect produced on these very excitable patients. In addition to the Von Graefe sign, the tremor, rapid pulse and enlarged gland, I have observed that there has been a marked increase in the blood pressure, varying from 185 to 210 Hg. Immediately following an operation, the patients have uniformly stated that they were markedly improved, and complain of few, if any, of the original symptoms, while on examination we find the original symptomatology present with only a slight reduction in the blood pressure, say from 157 to 170. The pulse is still rapid, the eye prominent and the tremor marked. After eight or nine months there may be noticed a marked improvement of these symptoms, but I do not believe it is right to allow an inference to go out that in these patients operation is followed by immediate complete cure.

DR. C. H. MAYO, Rochester, Minn.: Within the last few years I have written a number of papers on the treatment of exophthalmic goiter, and in nearly all, as I reviewed them later, I was reminded of a deformed child. I seem always to have attributed my success to some particular part of the technic which I do not now use at all. Once I used the Paquelin cautery to prevent absorption from the raw surface and the exudation of the serum. Next I used phenol and then Harrington's solution. Now I do not use anything on the gland, and in 800 cases my results have been just as good as they were when using the cautery and solutions named. In the early days the patients coming to the surgeon were in bad condition, often on the verge of death. Surgeons have come to recognize these cases and do not operate when the condition is hopeless. There are several types of goiter, and we should be able to recognize them.

In Rochester we operate on the gland itself by removing or ligating its blood-supply. We treat patients by cystolysis with

a serum. By ligation we secure a change in the blood supply, and this change may come through other influences. There may be a tendency to recover in one-fourth of all cases. We ligate when we think that the patient cannot survive a radical operation for removal of all of the gland. This puts the fatal cases over into the ligation series. We have reduced our mortality greatly by exercising judgment in selecting the operative cases. If the patients are not in a suitable condition to be operated on, they are put under medical treatment until we feel that something can be done for them. We ligate, say, one artery to-day, another in a week or two weeks, and so on.

The choice of an anesthetic is not so important. I often use local anesthesia. I have had two deaths following the ligation of the thyroid artery, one under general and the other under local anesthesia. As Dr. Crile has stated, the psychic factor plays a great part in these cases. Patients with marked psychic disturbances are not suitable for any kind of an operation and they should be left in the medical class. We cannot always select the cases or make an exact diagnosis of conditions, but by carefully studying the patients and giving suitable treatment, we certainly can diminish the mortality very materially and also get much better results.

DR. G. W. CRILE, Cleveland: In Kocher's clinic there are certain patients with advanced exophthalmic goiter on whom he does not undertake to operate. He, like Mayo, found that if he operated in such cases the patient died, and the cause of surgery and the interests of the patient are not conserved.

I wish to suggest a method that will permit the surgeon to do a ligation on every patient who is still alive. The operation can be done in bed, in a minute or two, without pain and without reaction. The field can be cocainized without frightening the patient to death, as many patients with exophthalmic goiter have been. If fear is eliminated, and it can be done perfectly well, there will not be any trouble. When the brain is marooned, it does not appreciate that an operation is going on. Therefore, the patient must be kept psychically and physically in a negative phase. There is no reaction, and I believe, from what we have now discussed, that it is quite evident that we can do a ligation in any case. I do not say that all patients can be cured, because some of these cases are far advanced. I have operated on patients who have been on the verge of delirium. I have operated on them in bed without any reaction. It is not in the mild, recent cases, but in all cases, that the patients are benefited by ligations.

Knowing, as we do, that in exophthalmic goiter changes in the brain cells take place, how can we expect merely to operate on the glands and then submerge the patients again in an environment from which they received the disease and expect them to recover promptly? My idea is that the operation serves to break the pathologic chain that is enthralling the patient; that once broken, the patient may be cured by being compelled to take the rest cure. Operation is only one phase of the treatment. The rest cure and after-care are other phases, and it takes from two months to a year, or even more, before these patients can be said to be cured, and unless they are completely cured at the first trial they are more difficult to treat when a relapse has occurred. I have often seen cases which bear out this statement. Surgery should try so to perfect its technic that in every case, no matter how bad, the patient may be speedily operated on and benefited. Surgical treatment is only one step in a cure. A long rest cure must follow. This is as necessary in goiter as it is in a nervous breakdown from any other cause.

Fatigue in Neurasthenia.—Under normal conditions the sense of fatigue is not unpleasant, and if followed by timely rest may be a positive pleasure. If, however, effort is pushed to the point of complete exhaustion, symptoms are apt to arise which closely resemble those of neurasthenia. The individual becomes mentally depressed and indifferent to all other considerations but himself; effort of all kinds, physical or mental, is painful, he suffers from headaches, backaches, etc., and is irritable and sleepless. All these and similar symptoms, whether the result of physical or mental labor, depressing emotions, prostrating illness, etc., sooner or later yield to appropriate rest and régime.—D. Ferrier, in the *Practitioner*.

SODIUM CACODYLATE IN SYPHILIS

A SECOND NOTE

A. J. CAFFREY, M.D.
MILWAUKEE

I recently published[1] a report of a case in which a typical chancre was successfully treated with sodium cacodylate. Dr. L. L. Michel[2] questions the results. I therefore submit the accompanying portrait of the patient, taken Jan. 10, 1911. The dark part on the lip shows the location of a bleb-like elevation that was caused by the patient's drawing the lip under the upper teeth, to hide it when he was on the street, because he was ashamed of the chancre. The patient is well and healthy, has gained weight, and his kidneys are acting normally. He has no ocular signs of poisoning, and no return of the secondaries. He is apparently cured.

Patient treated with sodium cacodylate for chancre on lip.

I have been using the sodium cacodylate side by side with 606 and while I am glad to say that I have had good results with 606, I have had just as good with sodium cacodylate. Dr. Michel, in his letter[2] to THE JOURNAL, tells of chancres on the lip and elsewhere healing under the influence of the soluble salts of mercury in two weeks, or thereabouts. I do not doubt this, as I have had the same result myself with mercury, but mercury is just what we are trying to get away from. I find that patients tolerate sodium cacodylate well and its toxic effect does not show until after very strenuous treatment. Dawes and Jackson[3] found that it required 0.8 gm. injected to kill a rabbit; in the case reported I have given in all, over a period of one month, 46 grains.

600 Grand Avenue.

1. THE JOURNAL A. M. A., Dec. 24, 1910, p. 2211.
2. THE JOURNAL A. M. A., Jan. 21, 1911, p. 211.
3. Dawes, S. L., and Jackson, H. C.: The Physiologic Action, Elimination, and Therapeutic Application of Sodium Cacodylate, Used Hypodermatically, THE JOURNAL A. M. A., June 22, 1907, p. 2090.

A PLEA FOR GREATER CARE IN ARRANGING PATIENTS ON THE OPERATING-TABLE FOR THE PREVENTION OF THE COMMON POSTOPERATIVE WEAK BACK

THE PRESENTATION OF AN APPARATUS FOR HOLDING THE LITHOTOMY POSITION WITHOUT STRAIN

JOEL E. GOLDTHWAIT, M.D.
BOSTON

In a previous paper[1] I called attention to the importance of considering the positions in which patients are placed during the performance of operations so that the sacro-iliac joints and the lumbar spine cannot be strained.

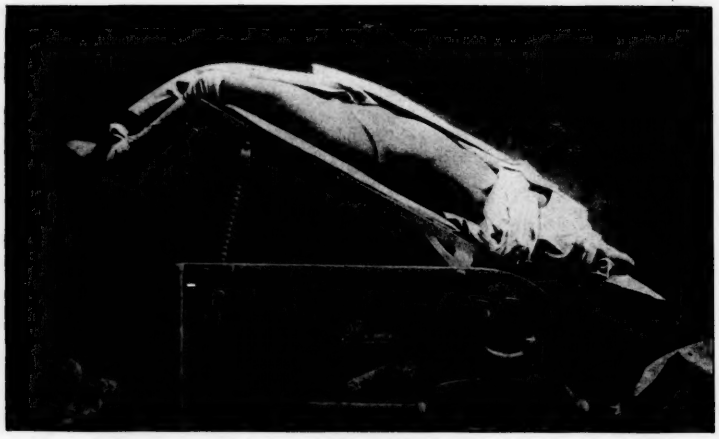

Fig. 1.—Faulty position without support for the back and with the thighs hyperextended. Strain of the lumbar spine and sacro-iliac joint must result.

The facts that such strains do often occur and that many patients are harmed because of these unnecessary strains in connection with operation cannot be questioned; but only those who have to do with the treatment of weak or painful backs or with chronic joint diseases in adults can appreciate how frequently such conditions occur.

In the article referred to the position in which the patient should be placed, if the operation requires the horizontal position on the back, or the Trendelenburg position, was shown, as well as the undesirable position in which strain of the lumbar spine and sacro-iliac joint are possible, and because of the apparent importance of the subject, this section of the previous paper is quoted:

"We must remember that, when lying on the back, if the bed or supporting structure is hard so that the buttocks cannot settle into it, the lumbar spine must sag downward, and if the buttocks are large or the waist small, the amount of this sag may be enough to cause painful strain on the interspinous ligaments or on the sacro-iliac joints. . . . .

"This means that in planning operations we have responsibilities other than those which have to do with the purely local lesion. At such times, if the whole body is considered, the strained sacro-iliac joints with the distressing backaches and with the not infrequent disability which results from this will not occur. The patient will not be put on the table as shown in Figure 1, since in this position the thighs are hyperextended, the axis of the pelvis must be drawn forward, thereby raising the upper part of the sacrum and the lumbar spine. There being no support for the spine, however, it must sag back again, and with this the sacrum must be dragged downward, the two influences necessarily resulting in definite strain of the sacro-iliac joints, with subsequent backache. Not only this, but as the result of the hyperextension of the thighs and the tilting downward of the anterior part of the pelvis the abdominal muscles must be stretched, making unnecessarily difficult the separation of these muscles during abdominal operations. With the slight support under the back to prevent the sag of the spine and also under the knees so that hyperextension is prevented (Fig. 2), all of these undesirable features can be overcome without in any way interfering with the important elements of the position."

In regard to the protection of the patient when the operation calls for the lithotomy position, while the desirable position as well as the common undesirable position was shown, it was quickly realized that the maintenance of the desirable position was practically impossible with any of the resources at our command. Because of this the apparatus which is here described was designed, and it is the presentation of this that has seemed to me a sufficient justification for the communication.

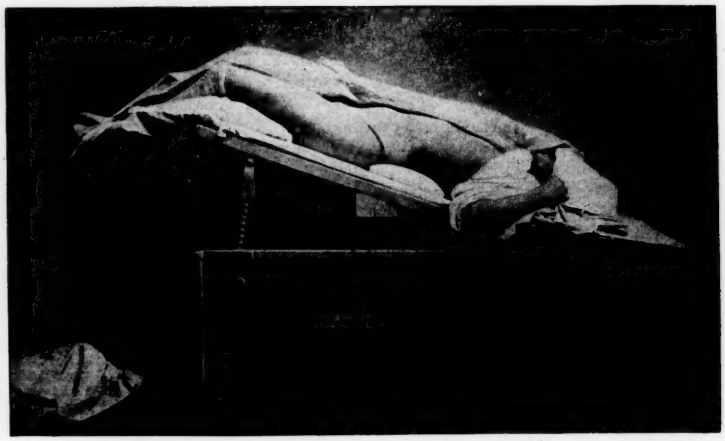

Fig. 2.—Correct position, with lumbar spine supported and with pillow under knees to prevent the hyperextension. No strain of the lumbar spine or sacro-iliac joint can result under these conditions.

In studying the subject I have been impressed by the fact that not only do the patients often receive harmful strains of the back by being placed in these positions, but the assistants at such operations are often severely

1. The Relation of Posture to Human Efficiency and the Influence of Poise on the Support and Function of the Viscera, Boston Med. and Surg. Jour., Dec. 9, 1909.

strained and unnecessarily exhausted because of the positions which they are forced to assume—positions which no human being can maintain for long without harm. The frequent giving out of the assistants at such operations while the operator himself remains fresh, in my studies has made me try to devise something that would not only protect the patient, but would protect the assistant also.

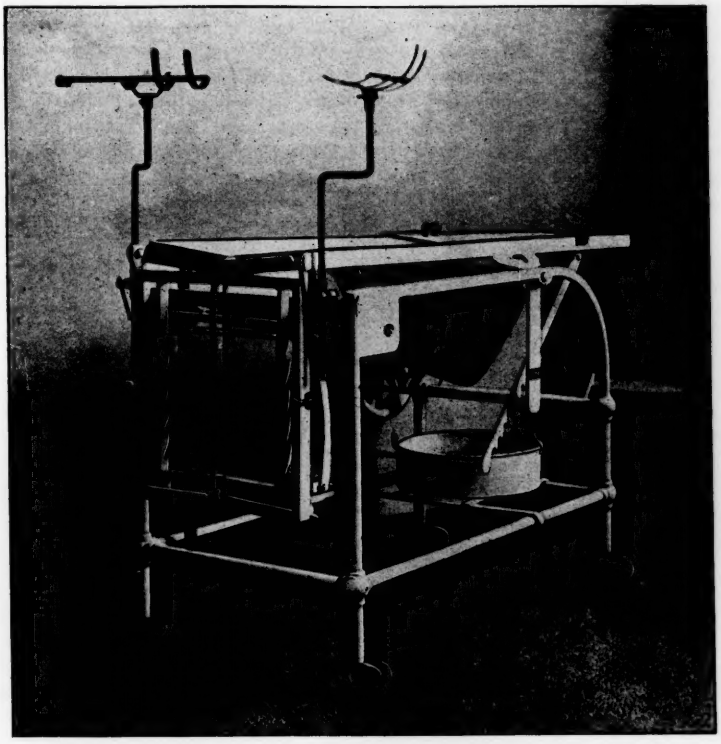

Fig. 3.—Table with adjustable leg supports.

To quote again from the article above mentioned: "With the lithotomy position, also, there is a right and a wrong way of obtaining this. If the thigh is sharply flexed and at the same time abducted, and if, as is so commonly seen with this, the assistant rests on the leg as he reaches over to assist the operator, the ilium must be strained downward and backward, with resulting sacro-iliac strain and weakness." If, however, the thigh is flexed less sharply and if a bandage or strap is attached about the knees to prevent the marked separation of the knees, "the position can be maintained indefinitely without harm and without sacrificing the essential features of the position."

The same opinion is held to-day in the present comment as at the time of the presentation of the earlier paper, but I now realize fully that, while the position last mentioned is the desirable one, it cannot be maintained without definite mechanical aid. The strap about the knees to prevent the extreme abduction of the thighs in the first place, interferes with the usefulness of the assistant, and when the coverings are in place unnecessarily obscures the field. In the next place, to hold the leg in this position for the length of time of the usual operation is absolutely impossible, since the weight of a leg is no small thing and since no muscle even under favorable conditions (and this would be decidedly unfavorable) can maintain its contraction for more than a very few minutes without becoming wearied and relaxing. This must result if the assistant attempt to hold the leg, and it not only allows ultimate drag of the leg, but represents a source of unnecessary strain for the assistant.

To overcome this the leg-rest that is shown in Figure 3 has been constructed by the Kny-Scheerer Company and can be secured through them for attachment to any table. It consists of the flat rest on which the lower leg is placed, and the adjustment of the position of this is made by raising or lowering the upright, for the height, or by rotating the upright so that the double angle moves the rest farther away or nearer to the patient. When the leg is once placed in the desired position (Fig. 4), the position cannot be changed except as the operator may wish, and not only this, but the assistant has a definite rest on which he can lean without harm to the patient. In this way the extreme weariness of the assistant, which must come when the body is used in the flexed and partially rotated position with only the muscle supports to protect it, is entirely eliminated.

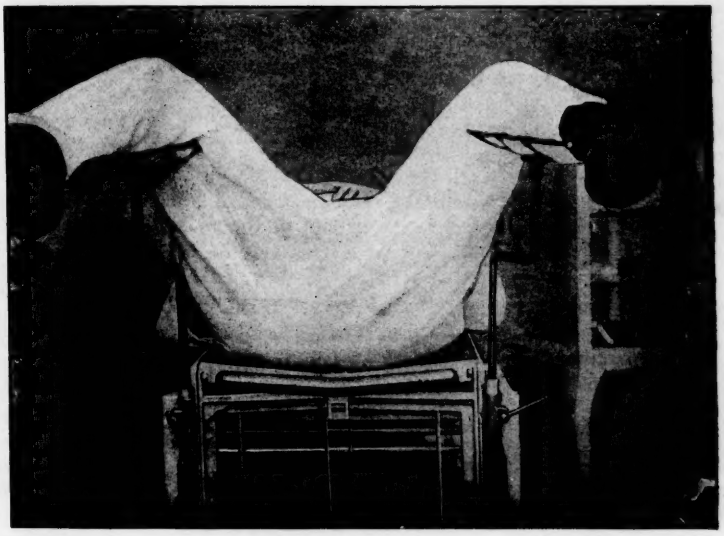

Fig. 4.—Lithotomy position, with legs supported on the rests shown in Fig. 3. Once arranged, the position cannot change except as the surgeon may wish.

The effect on the position of the thigh which results from trying to support the leg on the upright commonly attached to operating-tables, in which the leg hangs by a noose around the ankle, is shown in the left leg of

Figure 5. This must result in the sag of the legs apart, with at the same time the outward rotation of the thighs, both positions meaning strain to the pelvic joints, which must be greatly increased if the weight of the assistant is added. The contrast to the position of the right leg in this illustration is at once apparent.

In the experiments which were made in planning the leg rest I myself took the positions in which the patients are commonly placed, and if anyone has any question as to where the strain is received I would suggest that that person make the same experiment on himself.

In conclusion I wish simply to call attention to the fact that the position in which the patients are placed at the time of operation has much to do with the presence or absence of postoperative backaches and the subsequent weakening of the sacro-iliac joints. The positions in which strain will not take place are so easily obtained that there is no possible excuse for such harmful conditions occurring. An apparatus is shown in which the lithotomy position can be maintained indefinitely without strain either to the patient or the assistant.

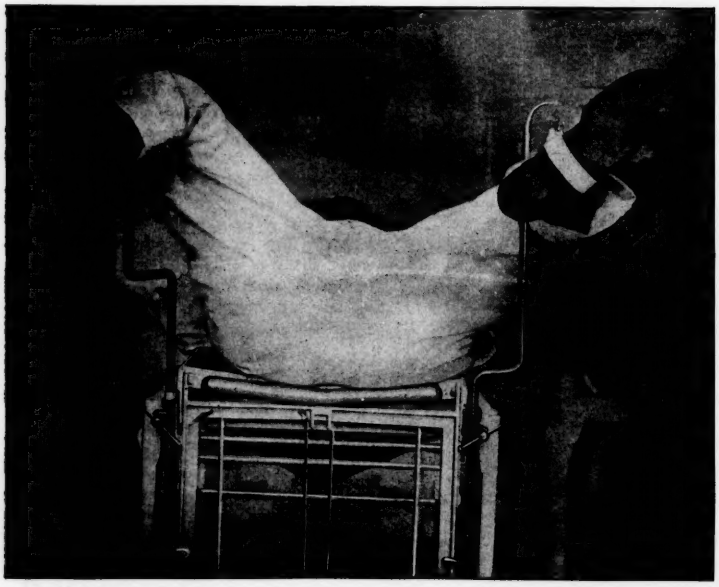

Fig. 5.—The right leg correctly supported, the left supported by the ankle noose which must allow sag and joint strain.

372 Marlborough Street.

Plague Eradication and Rats in India.—In one house in Belgaum 197 rats were caught in the course of a year; this was a grocer's shop in the city market. It was a small house of three rooms, occupied by six people, Mahomedans, and it is a curious fact that the house possessed two cats. There were seventeen houses in which more than fifty and less than a hundred rats were caught; nine of these were ordinary dwelling houses, two were grocers' shops, one a grain godown, two liquor shops, one butcher shop, one stable, and one weaver's house. Two hundred and thirty-seven houses yielded a catch of more than twenty but less than fifty rats. Twenty-four of these were grocers' shops, sweetmeat sellers or grain stores, nineteen were weavers, eight were tailors' shops. No other trade seems to possess any influence especially favorable to rat infestation. The Indian cat is not a particularly good rat catcher.—Reports on plague investigations in India.—*Journal of Hygiene.*

INTRACRANIAL SURGICAL LESIONS IN CHILDREN *

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CHICAGO

I wish to present a series of cases consisting of different cranial and intracranial lesions, giving brief history, the operation performed and the indications for surgical interference, as well as the results obtained. Although in this series the results have not been so flattering as one would wish, I hold the long existence of the lesion responsible for producing destruction irreparable by surgery.

The best results in surgery are achieved by prompt action, and the surgery of the brain is no exception. When once areas of the brain are destroyed we can hope but little for repair. Many of my patients are brought to me when all hope for improvement has been abandoned months and even years after.

Most of the patients have been given potassium iodid for long periods, and perhaps several periods, no results having been obtained. Physicians have been changed and another course of potassium iodid given, when three and at most six weeks should have given positive proof that the treatment was of no avail.

If a child had a broken arm, what physician would wait twelve weeks to reduce it or wait until an abscess had formed, as was done in the skull fracture in Case 12? This also should remind us of the disasters that may happen weeks after an apparently slight head injury.

Early surgical interference in fracture of the skull, with intracranial hemorrhage, will be rewarded by almost certain recovery (Case 2), while delay for months or years hoping against hope that the focal symptoms if present will disappear, can lead only to discouragement and disappointment after operation (Cases 3 and 4). Much improvement may, however, be obtained in children after several years' delay (Case 5). Constant localized headaches should demand our most serious attention and our greatest efforts to determine the cause, as they may mean localized diseased areas within the skull (Case 6). Severe headaches following chronic otitis media associated with dizziness, rapid rise and fall of temperature, nausea and vomiting, frequently demand prompt surgical interference (Cases 7 and 8) to prevent extension into the cranial cavity.

I have studied carefully a number of children with impaired mental development, endeavoring to learn what was the cause of the mental defect and what benefit could be derived from medical and surgical treatment in these cases. Many children, soon after birth, suffer from malnutrition, probably from some unknown hereditary cause. Many of these cases improve under medical

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

treatment while others seem to be benefited but little, or not at all. It is the latter class that I wish to report.

These children frequently have convulsions from twenty-four hours to a week after birth, associated with slight rise in temperature and apparent unconsciousness. After the attack they fall asleep for several hours, the attack being repeated at indefinite periods. These attacks may be associated with involuntary movement of the extremities or face. Home treatment is resorted to. The parents discover later, however, that the children are not so bright as other members of the family,

Fig. 1.—Patient 4, just before operation. Decompressed fracture, duration fifteen years.

Fig. 2.—Patient 10, before operation.

or children of the same age in other families, and it is then that the family physician is told of the symptoms the child presents. Frequently there is a tuberculous tendency in the family, but more frequently there is a syphilitic taint. Many of these children improve under antisyphilitic treatment, but if the improvement is temporary it is not conclusive evidence that the underlying cause is not syphilitic, for many of these children will not tolerate antisyphilitic treatment, nor will they be benefited if it can be tolerated. I have found in these cases, capillary arteriosclerosis as early as the sixteenth month, the findings and symptoms of these children indicating intracranial pressure. Not until the pressure has been relieved will the administration of mercury or potassium iodid prove beneficial; but many of these patients seem to make marked improvement after decompression, followed by antisyphilitic treatment.

In cases of chronic tuberculous meningitis the children have not improved after operative interference, while in chronic syphilitic meningitis every patient has apparently improved under antisyphilitic treatment after decompression.

It is my rule to make a Wassermann test in all cases, and if it is found positive or questionable to repeat the test, and also make a test on both father and the mother. I have not failed in a single instance, when I secured the positive test in the baby, to find either the father or mother giving a like test.

Fig. 3.—Patient 10, two months after right and left temporal decompression, showing bulging in temporal region.

Cases 9, 10, 11, 12 and 13 are selected from a series representing the above class of cases. In all cases of suspected brain tumors, if the tumor can be located, operation should be done with the hope of removing the tumor or relieving intracranial pressure, trusting that the tumor can later be removed. The decompression must be done before the patient has advanced ocular or mental disturbance (Case 14).

Children presenting, soon after birth, paralysis of a hand or leg should be closely watched and if the paralysis progresses and there are signs of intracranial pressure or rapid extension producing progressive paralysis, much, I think, may be done in the way of benefiting and saving the lives of these babies, if a large opening is made in the skull and intracranial pressure relieved (Case 15).

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Following is a brief history of the cases referred to above:

Case 1.—*History.*—R., a girl aged 6, American, entered hospital Oct. 28, 1906, at which time she had been sick six weeks with headache and some fever; diagnosis, typhoid fever. The patient improved slowly only to relapse again to her former condition. Family history negative; the patient had had usual diseases of childhood; measles at age of 4; father living and well, aged 50; mother living and well, aged 50; has four brothers and four sisters. On the afternoon of Oct. 28, 1906, the patient's headache became severe and she became stupid and then unconscious. At this time her condition was so grave that she was taken to Willard Hospital, arriving there about 3 a. m., where I first saw her. Six weeks before becoming ill she had slipped on the deck of a boat while returning from England, striking her head against a bolt-head, but little thought was given this and no medical aid sought. She complained of headache a few days; then was apparently as well as usual.

Examination.—At the hospital, pulse was 60, respiration 10, temperature 98.5. Blood-count showed hemoglobin 78, reds 3,400,000, leukocytes 26,000, polymorphonuclears 80. A diagnosis of intracranial pressure was made.

Fig. 4.—Patient 11, before operation, showing crossed and spastic condition of lower extremities.

Operation and Result.—Under chloroform anesthesia, a large subdural abscess was drained. The time consumed was forty minutes. The patient improved until the tenth day when she had a chill, rapid rise of temperature and died on the twelfth day following the operation. Temperature per rectum was 106.6, pulse 138, respiration 60. The post-mortem findings were diffuse meningitis, and double pneumonia.

Case 2.—*History.*—F., a boy aged 7, American, entered Willard Hospital July 6, 1908. Family history negative; had had measles and scarlet fever. July 6, 1908, patient fell from a stairway to a cement floor, a distance of about eight feet. He was unconscious when picked up but remained so only a few minutes. After regaining consciousness he appeared perfectly well for about forty-five minutes; then gradually relapsed into unconsciousness and remained so. This was accompanied by vomiting and muscular twitching, followed by violent involuntary muscular contractions of the entire body. The pupils were widely dilated; there was a large swelling in left parieto-occipital region. Dr. W. J. Butler first saw the patient and brought him to the hospital at 8 p. m., two hours after the injury. I first saw him at 5:30. Diagnosis was fracture of the skull with hemorrhage.

Operation and Result.—Patient was taken to the operating-room at once. A large bone flap was reflected; there was no extradural hemorrhage, but a large intradural hemorrhage filling the subdural space; the dura was opened and a large flap turned up. Bleeding points were ligated with fine catgut. The wound was closed without drainage. Time of operation and preparation was forty minutes; anesthetic, chloroform. Patient awoke from the anesthetic conscious, made an uninterrupted recovery and left the hospital on the tenth day cured.

Fig. 5.—Patient 11, two months after operation. Able to sit up and hold head erect. The head is not leaning against the back of the chair.

Fig. 6.—Patient 16. Baby 2 weeks old. Infected cephalematoma, drained and cured.

Case 3.—*History.*—Miss P., Polish girl aged 15, entered Willard Hospital Nov. 5, 1908. Family history negative; patient had had usual diseases of childhood. Two years before while watching a parade patient jumped off the back porch to a cement sidewalk, a distance of about 15 feet. She fell on her side, striking the right side of the head against the walk. She was unconscious for a short time. On regaining consciousness she had a paralysis of the left leg and arm which grad-

ually improved for about six months, after which there was no improvement. At time of admission she could not walk and could not use the left arm or hand. Examination revealed a depressed fracture in the right parietal region.

Operation and Result.—A large bone flap was raised; dura was found adherent to other coverings of brain and the brain itself; the bone flap was replaced without drainage. The anesthetic used was chloroform; time of operation, one hour. Patient has improved enough to walk with a cane, but the left arm is little benefited.

CASE 4.—*History.*—W., a man aged 21, American, family history negative, was kicked by a horse in left frontal region at the age of 7. The physician at this time removed a number of pieces of bone, and some brain tissue was lost. Wound healed, leaving a large pulsating wound. At the age of 14 the patient developed epilepsy and had frequent and severe attacks. On entering the hospital the attacks were as frequent as several a day.

Operation and Result.—Large skin flap made and a large amount of depressed skull removed. Wound was closed without drainage. The time of operation was about one hour. Anesthetic, chloroform. Patient developed pneumonia and died on the fifth day following the operation.

CASE 5.—*History.*—C., a boy aged 4, entered Willard Hospital March 15, 1909. Mother says he was a large baby, labor long and difficult. She was finally delivered with instruments. Baby seemed well and the physician noticed nothing wrong, but the child cried a great deal and did not move his arms and legs as did her other two babies when they were young. The mother said that the child never made any attempt to use his left hand. The physician informed her that in time the arm would be used. At 6 months the mother discovered that the left arm and leg were paralyzed. The baby always lay on his back, never attempting to sit up. He cried nearly all the time he was awake. At the age of one year he still made no attempt to sit up. At this time a physician was consulted and the mother was informed that the baby was paralyzed on the left side and the paralysis would be permanent. At the age of 16 months the mother laid him face downward and he learned to pull himself along with his right hand, pushing with his right leg and foot. He first sat up when he was 2½ years old and would hop about, using his right leg and arm. This was his mode of travel when I saw him in the hospital. He could stand on his right foot if supported, or could get hold of some object, as a chair, table, etc. He had never talked, nor could he be taught. His temper was violent and he at times would beat his head against the floor.

Examination.—The left arm showed nothing abnormal except atrophy. The left leg was atrophied and the patient had a marked talipes varus.

Many physicians had been consulted and none gave the mother any hope, but the mother consented to the request of Dr. Rominger (to whom I am indebted for the case) to allow us to operate and see if there was pressure that could be relieved.

Operation and Result.—March 16, in my clinic at the Willard Hospital I turned back a large bone flap on the right side and found extradurally several large deposits of lime salts. These were peeled off like fish scales. The dura was then opened but nothing pathologic found. The bone flap was replaced and in about one week the child began to use the arm a little. He left the hospital at the end of the third week able to stand with the aid of a stick used as a support. A letter from his mother recently says that he is talking a little and can walk well without any assistance. His great difficulty now is the club-foot. This case was undoubtedly one of extradural hemorrhage following injury by the forceps. The clot was partially absorbed; the rest calcified. Had this patient been operated on when a few weeks old there is no doubt that the result would have been more satisfactory than at so late a date—four years after the injury.

CASE 6.—*History.*—An American girl aged 18, family history negative, six years ago at the age of 12, complained of pain in the knee and hip; six months later she developed a sinus at the hip.

Treatment and Result.—The head of the femur was resected, but the sinus did not close. One year later I amputated the left lower extremity at the hip, as the *x*-ray showed necrosis of the femur and there were multiple discharging sinuses in the thigh. The wound healed nicely but soon the left elbow became swollen and painful and a sinus developed, communicating with the lower end of the humerus. This was curetted and the external condyle chiseled away. This healed and in a few weeks the patient developed a temperature of 106, respiration 60, with rigidity of the neck, and head drawn back. A diagnosis of tuberculous meningitis was made. She improved, temperature reaching normal in six weeks, but with a rise in the evening around 102. All this time there was severe occipital headache. As the pain was constant and localized I trephined and removed a necrosed plate of skull 2 inches by 2½ inches from the parieto-occipital region. Before this was healed, a mastoiditis developed on the right side and later a mastoiditis on the left side. Both were operated on and healed. The patient has had in all thirteen operations and has had tuberculin injections for eighteen months. In June, 1910, she was in better health than at any time since I first began to treat her, five years ago.

This patient has had right and left mastoiditis, with an extradural abscess in the parieto-occipital region.

CASE 7.—*History.*—P., a French boy aged 9, family history negative, entered the Willard Hospital, Dec. 13, 1909. Six weeks previously he complained of pain in the left ear, which was treated, and after a paracentesis of the tympanum he improved rapidly and the physician was discharged. A few days later the boy complained of frontal headache. This was accompanied by vomiting and dizziness. The following day the headache was more severe and the dizziness and vomiting worse, but the patient complained less, appearing stupid. About 4 a. m. December 13, the parents could not arouse the patient to give him his medicine. He was brought at once to the Willard Hospital, when I first saw him, with his attending physician, Dr. Stoll. A diagnosis of intracranial abscess was made.

Operation and Result.—The mastoid antrum was opened and the skull trephined just above the mastoid. About a dram of pus escaped; a gauze drain was inserted and the usual dressings applied. The patient soon regained consciousness and made an uninterrupted recovery, leaving the hospital in two weeks.

CASE 8.—*History.*—M., boy aged 9, American, family history negative, two months previous to entering the Robert Burns Hospital, Feb. 20, 1910, had acute otitis media. His physician, Dr. Brode, went South for a rest and the patient received no medical care until the evening of February 20, when Dr. Stewart was called and found the patient suffering excruciating pain, terrific occipital headache and at times apparent delirium.

Operation and Result.—At the hospital the mastoid antrum was opened and found full of pus. The lateral sinus was exposed and a few drops of pus could be seen oozing from the skull along the sinus. A probe was passed along the sinus and pressure made against the sinus when a large quantity of pus was liberated. A plate of the skull was now removed just above the sinus and a large extradural abscess drained. Patient made a good recovery and left the hospital in ten days.

Cases 7 and 8 will, I am sure commend to all of us the advisability of removing large plates of skull in draining abscesses, either intradural or extradural.

CASE 9.—*History.*—Infant A, aged 3, American, family history questionable, had a normal rapid delivery; a few hours after birth the nurse noticed that the baby acted strangely and thought that it was having a spasm. The physician was informed and the next day the baby developed a high temperature and became unconscious, remaining so for five days. It then improved but had some paralysis of the left upper and lower extremities. This improved but the baby frequently had apparent convulsions. Soon the lower limbs became crossed, the left anterior to the right and the legs and arms were very rigid. The baby never sat up, never talked, would not chew food and was fed on liquids. At the age of 3 when I first saw it the above condition still existed. Wassermann reac-

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tion was positive in the baby and the mother, but negative in the father.

Operation and Result.—A large bone flap was reflected, and brought into view many yellow areas of calcareous material as well as a diffuse capillary sclerosis. A temporal decompression was done and the flap replaced, but the baby never rallied and died from shock six hours after leaving the operating-room.

CASE 10.—*History.*—Edwin K., aged 16 months, had been ill since six weeks old; mother showed a positive Wassermann reaction. The child was born in normal labor. When about six weeks old it was noticed that the child could not control the movements of head; head would fall backward. When stood up it crossed the feet, the left one over the right. There was no paralysis in either arms or legs but the child used the left hand almost entirely. The Wassermann reaction was positive in the patient.

Examination.—There was a spastic condition of both legs and arms; chest well developed; heart negative; moist râles over both lungs; fontanelle closed; eyes reacted to light; arch of palate was high. The anterior cervical glands were enlarged slightly. Patella, Achilles and triceps reflexes were increased. Babinski sign was present in both feet. Wassermann reaction was positive. Measurements: Circumference Reed's base line 17 inches; symphysis mentis around vertex 19 inches.

CASE 11.—*History.*—The patient, Francis K., aged 6, gave a positive Wassermann reaction, as did his mother. The father and mother were living and well. The child was born after prolonged labor; had had whooping cough and pneumonia. When 6 weeks old it was noticed that the child could not hold his head up and would not nurse. When 2 years old he had a convulsion which only lasted a short time. He seemed to choke when the attack came on; had high fever at one time. When stood up the child crossed the legs, the left one over the right. Most of the weight is put on the right leg. The child never was able to stand alone or sit up. When put in a chair he had to be tied; he had no control over his body; he was constantly constipated. Child has never been able to talk; he was unable to use his arms until about two years ago; used left hand until a short time prior to June, 1910, when he began to use the right hand; he swallows with difficulty; has had adenoids removed.

Physical Examination.—Heart, negative; moist râles throughout chest; head not symmetrical; right side enlarged; eyes react to light; teeth decayed; hard palate arch is high; cannot control saliva; thyroid gland enlarged. Child has undescended testicles. Skin reflexes normal; disturbance of sensibility; increased triceps reflex; increased patellar reflex; Babinski in both feet; increased Achilles reflex; has been nauseated but did not vomit.

CASE 12.—*History.*—M. P., aged 3½, American, whose father gave a positive Wassermann reaction, has had convulsions from time to time since birth, and some days from 15 to 20. Child seldom cries; sits alone, cannot talk, does not recognize strangers, head in almost constant motion from side to side; sees and picks out bright objects from dull-colored ones; nurses from a bottle the same as a baby; does not hold the bottle herself; lower extremities spastic.

Operation and Result.—Large bone flap was made March 24, 1910. The child made an uneventful recovery following the operation. There was no improvement except that no spasms occurred since the operation and the spasticity of lower extremities is improved. Calcareous deposits were observed along the course of all the arachnoid vessels.

CASE 13.—*History.*—Infant DeP., a girl aged 5, has had pneumonia. Father and mother are living and well. One brother, 4 months old, is well. Labor lasted twenty hours after the first pain, according to the mother's statement. Present trouble began when the child was 3 months old, at which time the parents noticed that her arms and legs began to twitch. The next day she began to have convulsions. She had a high temperature and a diagnosis of meningitis was made. After these convulsions she would lie back with her head drawn backward and the neck rigid. She had been having these convulsions ever since; had had as many as 38 in one day; had had periods of a month or more when she had no convulsions; had none for the previous six months till June, 1910, when she had one, and several since. She never recognized persons nor objects, and was never able to talk. Otherwise she was healthy and developed about as any child of five years.

Examination.—Heart and lungs negative. Achilles tendon reflex present on both sides; more lively on left; no ankle-clonus; Babinski present on both sides. Arm and leg on left side twitched both when patient is asleep and when awake; mouth twitched and drew toward the left; no paralysis of any kind was present but child was unable to stand, although she would sit up and seemed reasonably strong. She seemed to have an appreciation of light and of loud sounds, and was sensible to the touch. When she had the convulsion her right arm and leg twitched, while the left leg lay quiet. (I observed one convulsion.) Wassermann reaction was negative.

The child died thirty-six hours after operation, not reviving from shock. Autopsy showed chronic tuberculous meningitis with the dura and arachnoid adherent to the brain substance.

CASE 14.—*History.*—B., a boy aged 14, German, family history negative, about six months before entering the Willard Hospital, April 6, 1910, complained of feeling dizzy and his parents noticed that he staggered when he walked, especially in the morning. Soon he began to have impairment of vision and projectile vomiting as well as diffuse excruciating headache, at times almost unbearable. There were no local symptoms. A diagnosis of cerebellar tumor was made. Wasser-

TABLE OF CASES OF INTRACRANIAL

No.	Name.	Age.	Nationality.	Family History.	Injury.	Duration.	Mental State.	Headache.	Vomited.	Epilepsy.	Pulse.	Respiration.	Temperature.
1	Miss R.	6 yrs.....	American...	Neg...	Yes.	6 wks...	Unconscious.	? ...	Yes.	No.	Slow....	Slow.....	Normal...
2	Mr. F..	7 yrs.....	American...	Neg...	Yes.	None. ..	Unconscious.	? ...	Yes.	No.	Slow....	Slow.....	Normal...
3	Miss P.	15 yrs.....	Polish.....	Neg...	Yes.	2 yrs....	Negative.....	Yes.	Yes.	No.	Normal.	Normal.....	Normal...
4	Mr. W.	21 yrs.....	American...	Neg...	Yes.	15 yrs...	Negative.....	Yes.	Yes.	Yes.	Normal.	Normal.....	Normal...
5	Mr. C..	4 yrs.....	American...	Neg...	Forceps delivery.	4 yrs....	Never talked.....	? ...	Yes.	No.	Normal.	Normal.....	Normal...
6	Miss B.	14 yrs.....	American...	Neg...	No..	2 yrs....	Negative.....	Yes-	Yes.	No.	Normal.	Normal.....	Normal...
7	Mr. P..	9 yrs.....	French.....	Neg...	No..	6 wks...	Unconscious.	? ...	Yes.	No.	Slow....	Slow.....	100-102+
8	Mr. M.	10 yrs.....	American...	Neg...	No..	2 mos...	Semiconscious...	Yes.	Yes.	No.	Slow....	Slow.....	103+
9	Miss A.	3 yrs.....	American...	?	Forceps delivery.	3 yrs....	Imbecile.....	? ...	Yes.	Yes.	Normal.	Normal.....	Normal...
10	Mr. K..	1½ yrs....	American...	?	No..	1½ yrs..	Imbecile.....	? ...	Yes.	Yes.	Normal.	Normal.....	Normal...
11	Mr. K..	5½ yrs....	American...	?	No..	5½ yrs..	Imbecile.....	? ..	Yes.	Yes.	Normal.	Normal.....	Normal...
12	Miss P.	3½ yrs....	American..	?	No.	3½ yrs..	Imbecile.....	? ...	Yes.	Yes.	Normal.	Normal.....	Normal...
13	Miss De P.	3 yrs.....	French.....	Neg...	No..	3 yrs....	Imbecile.....	? ...	Yes.	Yes.	Normal.	Normal.....	Normal...
14	Mr. B..	14 yrs.....	German.....	Neg. .	No..	6 mos ..	Conscious.....	Yes.	Yes.	Yes-	Slow....	Slow.....	Normal...
15	Infant C.	36 hrs.....	Jewish.....	Neg ..	Yes.	36 hrs...	?	? ...	No.	No.	.....	Deep, slow...	.....
16	Baby W.	2 weeks..	Jewish.....	Neg...	Yes.	2 wks...	?	? ...	No.	No.	Rapid. .	Rapid.	104°

mann negative. Blood-count showed no change in number of leukocytes.

Operation and Result.—April 9, 1910, a large occipital bone flap was reflected and the cerebellum exposed, but no tumor could be located. A plate of bone two inches square was removed and the headache entirely disappeared; also the nausea; but both have returned and there has been no permanent relief from the operation; a second operation has been refused.

CASE 15.—Infant G., aged 36 hours, Jewish, born after thirty-six hours' labor (instrumental delivery), was resuscitated with difficulty; scalp lacerated in right parietal region; left arm paralyzed; child in a stupor; later left leg became paralyzed. I advised operation which was refused. Baby died thirty-six hours after birth.

Autopsy showed depressed skull fracture with edema of the brain and membranes in the right motor area.

What might have been accomplished by operation in this and similar cases experience only can enlighten us.

CASE 16.—A baby 2 weeks old developed soon after birth a large fluctuating tumor on left occipital parietal region diagnosed as cephalematoma. On the tenth day the baby developed a temperature of 104 F., which continued until the contents of the tumor (an infected hematoma) were evacuated, after which the temperature dropped to normal and remained normal.

72 Madison Street.

SURGICAL LESIONS IN CHILDREN

Wassermann Test.	Paralysis.	Operation.	Findings.	Anesthetic.	Result.	Died After Operation.	Cause of Death.
Not made..	No..	Yes.	Brain abscess.	Chloroform...	Died.	12 days.	Meningitis.
Negative...	No..	Yes.	Fractured skull, subdural hemorrhage.	Chloroform...	Cured		
Negative..	Left arm and leg.	Yes.	Depressed fracture of skull	Chloroform...	Improved..		
Negative...	No..	Yes.	Depressed fracture of skull	Chloroform...	Died.	4 days..	Pneumonia.
Negative...	Left arm and leg.	Yes.	Calcified blood clot	Chloroform...	Cured		
Negative...	No..	Yes.	T. B. necroses of skull.	Chloroform...	Cured		
Not made..	No..	Yes.	Extradural abscess.	Chloroform...	Cured		
None.....	No..	Yes.	Extradural abscess.	Chloroform...	Cured		
+	Limb spastic...	Temporal decompression.	Capillary arterio-sclerosis.	Chloroform...	Died	6 hrs	Shock.
+	Limb spastic...	Temporal decompression.	Capillary arterio-sclerosis.	Chloroform...	Improved..		
+	Limb spastic...	Temporal decompression.	Capillary arterio-sclerosis	Chloroform...	Improved..		
+	Limb spastic...	Temporal decompression.	Capillary arterio-sclerosis.	Chloroform...	?		
Negative...	Limb spastic...	Yes.	Chronic T. B. meningitis	Chloroform...	Died.	1 day...	Shock.
Negative...	No	Occipital decompression.	Tumor of cerebellum	Chloroform	Died.	3½ mo.	Cerebellar tumor.
Not made..	Yes.	No..			Died		Edema of brain.
Not made..	No..	Yes.	Cephalematoma.	None..	Cured		

ABSTRACT OF DISCUSSION

DR. E. H. ABBOTT, Elgin, Ill.: Of four patients referred to Dr. Rogers by myself and operated on this year, one died of surgical shock; two have shown more improvement than he has given them credit for; one showed no improvement, but the younger child on whom he did a double decompression had very little vision before the operation and sight has improved to such an extent in this short time that it can recognize food across the room. The older child, four years old, this child's brother, has an asymmetrically developed skull due to a unilateral hydrocephalus. Dr. Rogers aspirated the lateral ventricle in this case, as well as doing a decompression operation. The time has been insufficient since that operation for us to judge the amount of improvement, but two of the four operated on show decided improvement.

DR. C. G. KERLEY, New York: One feature of these cases of operation on the brain in children that I have observed is the indefiniteness in determining the ultimate results. I had that illustrated in one case, in which a baby was injured by the baby carriage falling down a series of steps and turning over, throwing the child on the stone walk on its head. That child's skull was trephined and the bleeding vessel was ligated. The paralysis was relieved and the child made a temporary recovery. Then there developed paralysis of one side of the body, but the child developed beautifully mentally up to ten years of age. The result of the operation was remarkable considering the work that had been undertaken. The boy had a fairly good arm and a fairly good leg on the paralyzed side, and was in excellent mental condition until, at 10 years of age, he developed epilepsy. I have advised a second operation. This case has impressed on me the indefiniteness of results in these cases, for the epilepsy may develop years after an apparently successful operation. Our results in removing so-called pressure in cases of spastic paralysis several years ago were universal failures.

DR. CASSIUS C. ROGERS, Chicago: I would like to ask the last speaker if in the decompression operation the dura mater was opened. In children the dura mater has the power of forming skull and unless that is opened the decompression is temporary. In the cases I have reported the results have been encouraging. The patients are as well off since the operation as before, and in most of the cases there is improvement. In every case of intracranial hemorrhage, if operation is done in time, there should be a good result. We would not delay, if the hemorrhage were in the abdominal cavity, to open and tie the vessels, so why should we wait when the condition is in the cranial cavity? Epilepsy may develop twenty or forty years after an injury to the head. I have been operating on such patients for about ten years and I have had no epilepsy follow the operative procedure if the patient did not have epilepsy before the operation, and I have operated in cases in which the patient had had repeated attacks of epilepsy before the operation and have been free from these attacks for seven years. The case sent me by Dr. Abbott, in which I introduced a trocar and drained the lateral ventricle, I forgot to mention. We do not know what the end-results will be in any of these cases. Undoubtedly there are many children in insane asylums and homes for feeble-minded children, whom an operation in time would have benefited; it would have kept them out of these institutions. There are many individuals in penal institutions who are there because they have had head injuries followed by abscess, etc. A year or two ago I operated on a man who had served two periods in an asylum and I found an abscess the size of a hen's egg. These extradural abscesses are not uncommon. To diagnose lesions in children the only thing to do is to watch these children, sit by the bedside and watch them for hours; if necessary, spend nearly all of your time with them, perhaps for two or three days, until you have made your diagnosis and decided just what must be done. If you are in a hurry, let them alone.

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EXPERIENCE WITH SALVARSAN

EHRLICH-HATA'S 606 IN THE NEW YORK SKIN AND CANCER HOSPITAL

HOWARD FOX, M.D., AND WILLIAM B. TRIMBLE, M.D.
NEW YORK

Through the kindness of Dr. Flexner of the Rockefeller Institute we received in October twenty tubes of Ehrlich's 606 for experimental use in the Skin and Cancer Hospital. The twenty tubes have been used for the treatment of eighteen patients, a second injection having been given in two of the cases in which relapses occurred. All of the patients remained in bed at least three days after treatment and then continued under observation at the hospital or returned to the dispensary at weekly intervals. All except two of the patients have remained under observation up to the present time.

With the exception of a patient with nodular leprosy to whom the new remedy was experimentally given, the patients selected for treatment were those who presented active syphilitic manifestations and (except in Case 8) a positive Wassermann reaction. The choice of patients was limited to those in whom ophthalmoscopic examination of the fundus and examination of the heart and urine showed no deviation from the normal condition.

The injections[1] of salvarsan were given either in suspension or in solution in doses varying from 40 to 60 centigrams. In the first nine cases the drug was given in a neutral suspension in the subcutaneous tissue of the interscapular region. In one case (10) the injection was made in the quadratus lumborum muscle. In the last ten cases, soluble injections were given in the gluteal muscles, according to the method of Lesser.

Examinations for *Spirochæta pallida* were made with the dark-field illuminator in five of the cases and showed a rapid disappearance of the organisms after injection. In no case could any spirochetes be found at the end of seventy-two hours after treatment, as seen in Table 1.

The Wassermann reaction was performed in every case before the injection was given and was afterward repeated at weekly or somewhat less frequent intervals. It was found to be positive in all except one case (9) in which mercury had been previously administered for several months. The original Wassermann method was performed by us, using two antigens for every case, one of the antigens being an alcoholic extract of syphilitic liver that had been found reliable in testing several hundred cases. Active serum from every case was also sent to Dr. Noguchi of the Rockefeller Institute, who employed his own antihuman system in determining the reaction. The final results obtained by the two methods were approximately the same with the exception of Case 3, in which the Noguchi method showed a negative result on the fiftieth day, while the Wassermann method continued to show a positive reaction at the time of writing. In five of the cases (1, 6, 7, 11, 12) the reaction has become entirely negative at the end of eighty-five, forty-six, seventy, thirty-three and fifty-four days respectively. In one case it became weakly positive with the Wassermann method (negative with Noguchi) at the end of a month and again changed to a strongly positive reaction coincident with a bad relapse of the clinical manifestations.

In observing the general action of salvarsan we were impressed by the remarkable tonic effect of the drug in a number of our patients. From three to five days after treatment a decided improvement in appetite, color and general appearance was noted, especially in Cases 1, 2, 7. In Case 13, however, in which the result of the injection was most favorable, the general condition of the patient seemed decidedly worse for about two weeks after treatment.

In all of the cases a rise of temperature occurred during the first few days after the injection. As a rule, it appeared at the end of twenty-four hours and continued for two or three days with morning remissions. The highest temperature recorded was 102.6 F.; while in the majority of cases it did not exceed 101. In one case the temperature curve was of an intermittent character. In no case was it accompanied by chills. In the case of leprosy the temperature rose to normal, having been subnormal for several weeks previous to the injection.

TABLE 1.—RESULT OF EXAMINATIONS FOR SPIROCHÆTA PALLIDA

Case No.	Lesions Examined	Spirochetes Present Before Treatment	End 24 Hours	Hours 48	72 Hours
1	Papules..	Large numbers.	Few.....	None.....	.....
2	Ulcers...	Few.....	Few.....	None.....	.....
5	Chancre..	Large numbers.	Moderate numbers.	Few.....	None.....
8	Papules..	Moderate numbers.	Few.....	None.....	.....
13	Mucous patches	Enormous numbers.	Moderate numbers.	None.....	.....

While the general febrile symptoms were slight and the cause of little or no disturbance to the patient, the same cannot be said of the local effects of treatment. In almost every case there was considerable pain for the first twenty-four hours following the injections, and as a rule the use of morphin became necessary. In a few cases it was very intense and lasted for about three days. The insoluble injections in the subcutaneous tissue appeared to be more painful than those given in solution in the gluteal muscles. In spite of the unavoidable pain, two of the patients cheerfully submitted to a second injection when relapses occurred.

The induration following the insoluble injections varied considerably in the different cases. It was generally well marked for the first week. In no case has it absolutely disappeared at the time of writing. In three cases (3, 5, 6) it was very severe, accompanied by redness and was the cause of considerable discomfort for about two weeks. No abscesses occurred, although in one case (6) there was a slight necrosis of tissue, followed by a serosanguinolent discharge for three weeks. The induration resulting from the soluble injections in

1. In four of the cases (1, 3, 7, 9) the insoluble injections were given according to the method of Wechselmann. This consisted in grinding up the salvarsan in a mortar with 2 c.c. of a 10 per cent. solution of sodium hydroxid. Glacial acetic acid was then added, drop by drop, until precipitation occurred, after which 2 c.c. of sterile water were added. The mixture was then made neutral to litmus by the further addition of either 2 per cent. acetic acid or of sodium hydroxid, according to necessity. When completely neutral the suspension was centrifuged, the supernatant fluid poured or pipetted off, the residue mixed with 10 c.c. of physiologic salt solution and thoroughly shaken. It was then ready for subcutaneous injection. In six of the cases (2, 4, 5, 6, 8, 10) a neutral suspension was made by simply grinding up the salvarsan in a mortar with a 10 per cent. solution of sodium hydroxid. The latter solution was added in the proportion of 1.33 c.c. for each decigram of salvarsan, the mixture being brought up to 10 c.c. in volume by the addition of physiologic salt solution. The salvarsan was prepared for the soluble injections as follows: The drug was added to 15 c.c. of hot sterile water in a graduated glass cylinder containing a few glass beads, and dissolved at once on shaking. Two c.c. of a normal sodium hydroxid solution were then added, causing a precipitation of the salvarsan, which was redissolved by the further addition, drop by drop, of the sodium hydroxid solution. The mixture was brought up to 20 c.c. in volume by the addition of sterile water and an intramuscular injection of 10 c.c. given in each buttock.

TABLE 2.—RESULTS OF TWENTY INJECTIONS OF SALVARSAN

Case No., Sex, Age and Stage	Lesions	Duration of Lesions	Previous Treatment	Date, Dosage and Method of Injection	Local Effect of Injection	Wassermann Reaction	Result of Treatment
1—F.—47— II	Papular syphilid	5 weeks.	None	10/13/10.—Gm. 0.5 in suspension.	Pain rather severe for 12 hours; induration moderate.	Negative at end of 85 days.	Eruption almost disappeared at end of three months; improvement in general health one week after injection.
2—M.—19— II	Pustulo crustaceous syphilid of nose, ear, arms and legs.	8 months.	Continuous Hg. treatment by mouth eight months; grew worse under treatment.	10/15/10.—Gm. 0.4 in suspension.	Pain moderate, lasting 12 hours; induration slight.	Weakly positive end of month; then became strongly positive.	Marked improvement for three weeks, when relapse occurred. (See text.)
3—F.—32—III	Tuberculo-ulcerative syphilid of face.	2 years.	Hg. at irregular intervals by mouth and injection for two years; disease not controlled.	10/22/10.—Gm. 0.5 in suspension.	Pain severe; induration, redness and tenderness marked; slightly red end 2½ months.	Positive at end of 87 days.	Improvement began on second day; nasal discharge stopped at end of one week; crusted and ulcerated lesions healed in ten weeks.
4—F.—20— II	Chancre of lip; macular syphilid; mucous patches.	Eruption 6 days.	None	10/22/10.—Gm. 0.45 in suspension.	Pain and induration moderate and well borne.	Positive at end of 73 days; reaction weaker than at beginning.	Chancre healed in 3 weeks; eruption disappeared at end of 4 weeks; mucous patches healed in 4 days; severe relapse 6½ weeks from time of injection, consisting of mucous patches of mouth and vulva and macular and miliary papular syphilid.
5—F.—27—III	Gumma of clavicle; tubercular syphilid of lip.	Gumma 4 months; lip lesion 12 years.	Hg. at irregular intervals for many years; improved but never cured.	10/22/10.—Gm. 0.45 in suspension.	Pain moderate; induration and redness very marked at first; persisted 2 months.	Positive at end of 80 days.	Gumma nearly cured end one month (see text); lip lesion disappeared in ten days.
6—M.—32— II	Papulo-squamous syphilid; extensive mucous patches.	3 months.	Hg. by mouth for one month.	10/28/10.—Gm. 0.5 in suspension.	Pain and induration marked & persistent; slight tissue necrosis.	Negative at end of 46 days.	Disappearance of mucous patches in ten days; eruption disappeared end of 2½ months.
7—F.—20— II	Papular syphilid	3 weeks.	None	10/28/10.—Gm. 0.4 in suspension.	Pain and induration slight.	Negative at end of 70 days.	Marked improvement in general health at end of five days; gained 10 lbs. in weight since injection; eruption practically disappeared.
8—M.—37— II	Pustular syphilid	4 months.	Hg. by mouth for four months without effect on eruption.	10/29/10.—Gm. 0.5 in suspension.	Pain severe; induration slight.	Negative before and during entire treatment.	Moderate improvement at end of one week; patient failed to return to hospital.
9—M.—21— II	Maculo-papular syphilid	3 weeks.	None	10/29/10.—Gm. 0.45 in susp.	Pain severe first 12 hrs.; induration moderate.	Positive at end of 16 days.	Slight improvement during three weeks, when patient failed to return to hospital.
10—M.—34—III	Tuberculo-ulcerative syphilid of arm, shoulder and abdomen; ulceration of palate	4 months.	Hg. by mouth 2 weeks	11/3/10.—Gm. 0.5 in suspension.	Pain severe second day; induration slight.	Positive at end of 3 weeks.	Lesion healed in three weeks.
11—M.—38—III	Gummatous ulceration of hard and soft palate and ear.	6 months.	Hg. by mouth, inunctions and injections, irregularly one year; Hg. very badly borne.	11/10/10.—Gm. 0.5 in solution.	Pain severe for 12 hours; induration lasted 3 weeks.	Negative during entire treatment. (See text).	Astonishing improvement at first; ulceration of palate reduced to half its size at end of one week; marked improvement in general health and appearance; lesions practically healed in 12 days, when relapse occurred. (See text.)
12—M—24— II	Mucous patches; laryngitis.	10 months.	None	11/10/10.—Gm. 0.45 in solution.	Severe pain; marked induration of buttocks 2 weeks.	Negative end of 54 days.	Mucous patches disappeared three days after injection; hoarseness began to improve on second day, and by fifth day voice was normal.
13—F.—46—III	Tuberculo-crustaceous serpiginous syphilid.	1 year.	None	11/15/10.—Gm. 0.5 in solution.	Severe pain for 2 days; marked induration of buttocks 3 weeks.	Weakly positive at end of 63 days.	Eruption almost disappeared at end of three weeks; entirely well at end of one month; general condition worse for two weeks as result of treatment, anemia, loss of appetite and weight.
14—F.—35—III	Gumma of soft palate and pharynx; gummatous infiltration of access. sinuses; deafness.	3 years.	Hg. and KI by mouth irregularly one year.	12/3/10.—Gm. 0.45 in solution.	Pain and induration moderate.	Positive at end of 46 days.	Gumma nearly healed at end of six weeks.
15—M.—43—III	Tuberculo-ulcerative syphilid of thigh.	7 months.	None	12/5/10.—Gm. 0.45 in solution.	Pain severe 6 days; induration marked and lasted 3 weeks.	Strongly positive at end of 43 days.	Lesions entirely healed at end of 3½ weeks.
16—M.—38—III	See Case 11. Second injection.	.....	.....	12/15/10.—Gm. 0.6 in solution.	Practically no pain or induration.	Continued to be negative.	Improvement of ulceration marked at end of first week; process then remained about stationary and relapsed slightly at end of third week.
17—M.—19— II	See Case 2. Second injection.	.....	.....	12/22/10.—Gm. 0.45 in sol.	Pain and induration slight.	Positive at end of 26 days.	Continued slow improvement for a month.
18—M.—40—...	Nodular leprosy	6 years.	Chaulmoogra oil, strychnin and mercury.	1/5/11.—Gm. 0.4 in solution.	Pain severe; induration severe.	No examination made after treatment.	Absolutely no effect on lesions; since treatment has been confined to bed, his general condition having become markedly worse.
19—F.—23—III	Gummatous ulceration of leg.	6 months.	None	1/12/11.—Gm. 0.6 in solution.	Pain severe; induration moderate.	Positive at end of 1 week.	Marked improvement in lesions at end of a week.
20—F.—32—III	Gumma of nose.....	9 months.	Practically none	1/12/11.—Gm. 0.6 in solution.	Pain 24 hours; no induration.	Positive at end of 1 week.	Improvement at end of one week.

the buttocks was extremely variable in the different cases. It was greatest, as a rule, on the third day after treatment. In some of the cases it was slight and occasioned very little inconvenience. Two of the patients, however, complained of considerable lameness for about two weeks. While the pain and induration were by no means unbearable they were severe enough to make it very desirable to continue our experiments with other methods of injection, concerning which we hope to report in a later communication.

The result of the twenty injections from a clinical standpoint were in some respects encouraging, in other disappointing. The most brilliant symptomatic result was obtained in Case 13, in which a superficial tuberculo-crustaceous syphilid disappeared at the end of a month. Even in this case it is not impossible that a single injection of calomel or one or two injections of salicylate of mercury might not have accomplished the same results. An excellent result was also obtained in Case 5, in which a mild tubercular syphilid of the lip that had existed for twelve years (according to the patient's statement) disappeared at the end of ten days. A gumma at the sternoclavicular point occurring in the same patient was also healed at the end of a month. In three of the cases (1, 6, 7) presenting early papular syphilids, the results were apparently not so good as those that might have been obtained from mercury. The lesions, however, finally disappeared in each case, and the Wassermann reaction became negative.

In three tuberculo-ulcerative cases (3, 10, 15) and in a case of gumma of the pharynx and palate (14), the results were satisfactory from a clinical standpoint, although the Wassermann reaction has not as yet become negative. The result of treatment in Case 3 was especially gratifying, as it had been very difficult to control the disease with mercury. In three cases in which mucous patches were present (4, 6, 12) there was a most rapid disappearance of the lesions after injection. The result of treatment in the case of leprosy was most unsatisfactory. No change whatever occurred in the lesions and the patient's general condition has become decidedly worse.

Relapses occurred in three cases, in two of which we thought at first that splendid results had been obtained. One of these cases (2) presented a pustulo-crustaceous syphilid of somewhat malignant type that had grown worse under internal administration of mercury. The patient improved rapidly for a month, the Wassermann reaction becoming nearly negative and the ulcerated lesions of the nose, ear, arms and legs healing almost completely. He then suffered a severe relapse, his condition becoming nearly as bad as at the outset. He was given a second injection and the manifestations have again almost disappeared.

A disappointing relapse was also shown by a patient (Case 11) with extensive gummatous ulceration of the hard and soft palate. The improvement was most striking at first, the ulcerated area being reduced to half its original size at the end of a week. A relapse then occurred and the patient was given a second injection which was again followed by a relapse. As it is almost impossible to administer mercury to this patient it is our intention to give him one or two more injections of salvarsan in the near future.

It would be unwarranted to draw any general conclusions from our limited material. It must be admitted, however, that the effect of the new remedy, in causing lesions to disappear rapidly, has been striking in several of our cases. In other cases, however, the lesions have disappeared rather slowly. In comparison with what might have been expected from a vigorous mercurial treatment, the results do not appear to be especially brilliant. In several of the cases the disease had not been controlled by mercury and responded very favorably to salvarsan. Indeed in one case (11) the patient had found it practically impossible to take mercury in spite of persistent attempts to administer the drug by mouth, inunctions and injections.

In the limited number of cases in which we have used salvarsan it has seemed to us that the lesions of the mucous membranes have yielded more quickly than those of the cutaneous surface. As has been said, the brilliant results in some cases have been only temporary and the relapses that have occurred have followed the improvement with discouraging rapidity. Our results are favorable enough to make us willing to continue our experiments with salvarsan in a larger and more varied number of cases than the ones that are here reported.

In conclusion we wish to thank Dr. George Henry Fox for much of the material and for the privilege of treating the cases at the Skin and Cancer Hospital; to Dr. Udo J. Wile for the spirochete examinations, and to Dr. Robert G. Reese for the ophthalmoscopic examinations.

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GENERAL CHEMICAL ASPECT OF INTERNAL SECRETION

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Anyone who has watched the recent development of knowledge concerning the internal secretions cannot help being impressed with the significance of the results in their bearing on the chemical processes of the body. Not only have we learned that certain of the ductless glands, which hitherto were considered of little importance for the welfare of the organism, manufacture specific internal secretions all-powerful for the maintenance of health, but it has also been shown that these secretions owe their power to definite chemical substances, produced through the metabolic activity of the gland cells. The ductless glands become, then, miniature laboratories charged with the function of elaborating specific chemical products which are needed for maintaining the normal rhythm of nutrition. Let these glands cease their functional activity and the lack of their specific products entails disease and possible death. On the other hand, increased activity may be attended with equally disturbing results.

THE ADRENALS

A study of the product formed in the adrenals, for example, shows us that we have here a powerful substance, which in undue amount acts as a violent poison (0.2 mg. per kilo of body weight being a lethal dose for rabbits when given by intravenous injection), and in smaller amount exerts a striking influence on blood-pressure. This blood-pressure-raising constituent of the adrenals is a well-defined chemical substance, crystalline, basic in character and readily prone to undergo oxidation. Chemically it is a ketone-like body, having the structure of methylaminoacetopyrocatechol, and it is now made synthetically. To-day we fully recognize that the unique action of the internal secretion from this particular gland is due mainly, if not solely, to epinephrin, which fulfils a specific function both in

health and in disease. Further, the marked vasoconstrictor action of this substance has led to its widespread use as a therapeutic agent, so that we now have the natural base and the synthetic product available for use in the treatment of diseased conditions. We understand, further, that the marked and sudden rise in blood-pressure that attends the introduction of epinephrin[1] is due to two causes, viz., an accelerated and more energetic heart's action, together with a contraction of the smaller arteries and arterioles, especially those of the skin and in the region of the splanchnics. Section of the nerves is without visible effect on the blood volume, thereby indicating that epinephrin acts directly on the periphery, on the blood-vessels themselves.

Especially significant are the observations recorded bearing on a comparison of the natural base and the synthetic product, sometimes termed "suprarenin." The epinephrin prepared from the gland substance is optically active with a specific rotation of —51°. In other words, it is a levo-rotary body. The synthetic base, on the other hand, is optically inactive. Moreover, it has been demonstrated that the latter body has a far less powerful physiologic action than the natural base. Cushny, from his experiments, has concluded that natural epinephrin acts twice as strongly on blood-pressure as the synthetic or racemic epinephrin, and presumably also on the other organs affected by this substance. From this, the assumption is fair that dextro-epinephrin is without action as a vaso-constrictor. Finally, Flächer[2] has succeeded in splitting the optically inactive, synthetic epinephrin into its two optically active halves, and finds that the synthetic dextro-epinephrin and the natural dextro-epinephrin are physiologically identical.

Broadly speaking, the important point to be emphasized here is that the animal body in its special laboratory, the cell, follows a well-defined line of action producing compounds that are optically active; compounds in which the asymmetric carbon atom is conspicuous. The illustration of epinephrin is in harmony with many of the metabolic processes of the body in which an asymmetric carbon atom is a determining factor in the physiologic character of the substance. Nature makes use of optically active products, while the corresponding products turned out by the hand of man, though identical structurally, exhibit differences in steroisomerism.

The internal secretion from the adrenals may be taken as illustrating a form of chemical control, by means of which many of the processes of the body are capable of being modified. Variations in blood-volume and blood-pressure are conspicuous causes of modification in glandular activity, and we may well conjecture that variations in the amount of epinephrin produced and thrown into the blood-current may be responsible for many quantitative changes in function. Aside from this, we see in the marked glycosuria produced by epinephrin an illustration of specific action, the significance of which cannot be overlooked. Subcutaneous administration of epinephrin is followed by the appearance of dextrose in the urine, coupled with a true condition of hyperglycemia. As Elliott[3] has pointed out, the striking characteristic of ephinephrin is its tendency to stimulate plain muscle and gland cells that are or have been in functional union with sympathetic nerve fibers. In harmony with this fact, Underhill and Closson[4] suggest that the glycosuria produced by epinephrin is due to a stimulation of the sympathetic nerves leading to the liver or to other storehouses of carbohydrate, causing these organs to throw out their stored-up material in the form of dextrose. At the same time there may be a diminished storage of dextrose owing to stimulation of the hepatic cells by the epinephrin, thus causing these cells to reject the dextrose brought to them. However this may be, small quantities of epinephrin injected lead to a marked glycosuria, and apparently by an action on the nervous system through the intermediation of the sympathetic.

We thus have suggested the picture of a miniature gland endowed with the function of producing a powerful chemical substance which may serve to control and modify many of the processes of the body. Its importance to the organism is fully apparent from the results that follow complete extirpation of the adrenals, while its physiologic strength is equally manifest from the effects of subcutaneous injections of epinephrin.

THYROIDS AND PARATHYROIDS

Equally striking are the data that can be presented in connection with the thyroids and parathyroids. Ignoring all matters of detail, there stands out prominently one fundamental fact that in these tissues there is produced a peculiar chemical complex—characterized by containing iodin—known as iodothyrin. The chemical nature of this substance is not as fully understood as that of epinephrin, but it is apparently a cleavage product of a still larger protein complex. However this may be, the active principle is endowed with marked physiologic power. Extirpation of the thyroid tissues is followed by profound changes leading to myxedema, tetany, retardation of skeletal growth, etc., conditions which can be prevented or obviated in greater or less degree by administration of thyroidal tissue. Similarly, diseases which are associated with functional disturbance of the thyroids can be made to show great improvement by feeding sheep's thyroids or by administering iodothyrin. There are many interesting facts that might be cited regarding the relative significance of the thyroids and parathyroids, but the point to be emphasized here is that the thyroidal tissues manufacture one or more specific chemical substances which are essential for normal growth and development; substances which either directly or indirectly control certain nutritive processes on which good health and life itself depends.

Physiologic experiment shows us that iodothyrin fed to healthy animals tends to accelerate in small degree nitrogen metabolism. It likewise causes an increased excretion of phosphorus as phosphoric acid through the urine and also appears to stimulate the combustion of fatty material. There is thus apparent a certain ground for the assumption that normally the thyroid glands are essential factors in the regulation of body metabolism. Further, experiments seem to show that if all thyroidal tissue is removed from a healthy animal there is a diminished utilization of dextrose by the body, dextrose appearing in the urine if this sugar is injected in any quantity, the inference being that the thyroids normally influence the utilization of sugar in the body.

Again, in the pituitary there is accumulating evidence that the pars intermedia of this body produces, in the

1. In the original text of this article the term "adrenalin" was used, but in a general sense, and not with reference to any particular firm's make.
2. Flächer: Ztschr. f. physiol. Chem., lviii, 189.
3. Elliott: Jour. Physiol., 1905, xxxii, 401.
4. Underhill and Closson: Am. Jour. Physiol., 1906, xvii, 42.

XUM

words of Professor Schäfer,[5] "a 'colloid' material which contains active principles or hormones acting on the heart, blood-vessels and kidneys. Probably there are several such hormones acting on the blood-vessels and kidneys independently, and also acting antagonistically; so that according to circumstances either a rise or a fall of blood-pressure, an increased or a diminished secretion of urine may be produced, and the effects on the kidneys may be independent of those on the blood-vessels."

CORRELATION OF INTERNAL SECRETIONS

These brief statements and suggestions may be taken as emphasizing the specific action of definite chemical substances which constitute the basis of certain internal secretions. It is becoming apparent, further, that these ductless glands in their physiologic activity also exercise a regulating action on each other; that they are in some manner correlated. Clinicians have frequently called attention to the fact that a disturbance or impairment of function of one ductless gland quite commonly leads to a disturbance in the functional activity of some other ductless gland. Evidence at present available, for example, tends to indicate that the pancreas and the thyroid mutually retard the action of each other. The same is believed to be true of the pancreas and the chromaffin system, while the thyroid and the chromaffin system mutually increase the action of one another.[6] As to the explanation of these phenomena we can at present only conjecture, but there is a strong suggestion that chemical reactions are involved here, the full meaning of which can hardly be hoped for until we know more concerning the chemical composition of the secretion concerned.

My object, however, in referring to these unsettled questions is merely to emphasize the many ways in which these internal secretions probably act in the body, and the consequent importance of the chemical regulation they exercise in controlling metabolic processes. But it is to be remembered that in touching on the ductless glands we are only at the threshold of the subject. The pioneer work of Baumann in 1895 with the thyroid gland, accompanied by the discovery of iodothyrin, led to a fuller realization of the significance of internal secretion in general. Physiologists soon came to appreciate the far-reaching influence of the continual exchange of matter between all the living cells of the organism and the surrounding blood, lymph and tissue juices. In other words, there has come about a fuller realization of the fact that, broadly speaking, internal secretions may be considered as common to every group of specialized cells and that their chemical nature and physiologic action merit consideration. The ductless glands serve to illustrate special forms of internal secretion, the active substances of which are of the utmost importance to the organism. To-day, however, we recognize that the cells of every organ and tissue of the body are continually forming intermediate products and end-products, which are absorbed by blood and lymph, and which may serve as stimulants to other tissue cells, or in some manner exercise an influence on the metabolic processes of other organs or tissues. These forms of internal secretion are, many of them at least, of great importance, and merit as much consideration as the secretions that originate in the ductless glands.

Here, to my mind, lies the fundamental point to be emphasized in considering the chemical aspects of internal secretion. Chemical correlation, chemical control, stand out with startling distinctness, and this in a general way is equally true of every active gland and tissue of the body. It is as true of a gland like the pancreas, which has for one of its functions the manufacture of a specific digestive fluid, as it is of the thyroid, which apparently produces only an internal secretion. Even the excretory organs, like the kidneys, which seemingly are concerned solely in draining from the blood certain so-called waste-products, are plainly susceptible to the physiologic action of some of the substances they elaborate; the epithelial cells of the glomeruli and tubuli, for example, being noticeably sensitive to the action of purins, uric acid, etc.

Look also at the process of respiration, in which the waste product carbon dioxid, resulting from the metabolism of every tisssue cell, acts as a stimulant to the mechanism in the central nervous system, by which regulation of the respiratory movements is accomplished. Equally suggestive, though more specific in character, are the other "hormones" so thoroughly studied by Bayliss and Starling, emphasizing as they do the important part played by many internal secretions emanating from particular groups of cells in starting or controlling processes taking place in other glands or tissues. In the secretion of the pancreatic juice, the hypothetic nerve-control so long sought for gives place to a chemical control through the prosecretin manufactured in the epithelial cells of the upper part of the intestine. This substance, under the influence of the hydrochloric acid of the gastric juice, undergoes conversion into secretin, and then brought to the pancreas by the blood sets up a voluminous secretion of pancreatic juice. Again, in the intestine we find a specific substance elaborated, enterokinase, which, reacting with the trypsinogen of the pancreatic secretion, converts it into an active proteolytic enzyme. In the mammary gland we have another equally striking suggestion of chemical stimulation resulting from a substance or substances produced in a remote structure, by which the process of lactation is made possible. As the experiments of Claypon and Starling[7] indicate, the growth of the mammary glands during pregnancy is apparently due to the action of a specific chemical stimulus which has its origin in the fertilized ovum. The amount of this substance increases with the growth of the fetus and is therefore largest during the latter half of pregnancy. Lactation is supposed to be due to the removal of this particular substance, or hormone, which is therefore to be regarded as exerting an inhibitory influence on the mammary gland cells, hindering their secretory activity and furthering their growth. To quote more fully from Claypon and Starling:

> **During sexual life, therefore, the ovaries are continually producing a substance which exerts an influence on both glands and uterus. With the occurrence of conception there is at once a great growth of what we may call germinal material. With the growth of the fertilized ovum the amount of hormone produced in the ovum must also increase in proportion. In the early stages of pregnancy the chief source of this hormone may perhaps be located in the chorionic villi, but with the growth of the body of the fetus this latter must take a preponderating share in the preparation of the hormone. We have no reason to suppose that fetal elements of the placenta entirely lose this function of the germinal cells, but the negative results of injection of placentæ in our experiments show that it is impossible to ascribe to the placenta, as is done by Halban, a preponderating part in the preparation of this hormone.**

5. Schäfer: Croonian Lecture, 1909. Proc. Roy. Soc. B., xxxi, 442.

6. King: Jour. Exper. Med., xi, 666.

7. Claypon and Starling: Proc. Roy. Soc., B., lxxvii, 505.

CONCLUSION

Facts such as these, like the data gradually collecting regarding the internal secretions from the ductless glands, emphasize the part which specific chemical products play in the regulation of body metabolism; they serve to call attention to the importance and the general application of the methods of chemical control which the organism makes use of in regulating its affairs. Further, products of tissue metabolism in general, whether classified as intermediate or as end-products, in their passage through the circulation have abundant opportunity to exercise an influence on the activity of other tissues or organs. They are true internal secretions, as much so as the more specific products which are apparently formed for some special purpose, and as such they illustrate the truth of the general hypothesis that the products of all tissue cells are efficacious in greater or less degree as forms of chemical control in the processes of the body.

THE INTERNAL SECRETION OF THE PANCREAS

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Ever since the early experiments which culminated in those of von Mering and Minkowski, showing that removal of the pancreas causes the most profound and extraordinary disturbances in the general metabolism, and more especially in the metabolism of carbohydrates, the search for an explanation has been most active. Notwithstanding the fact that the literature on this subject is enormous and that many side-lights have been cast on the problem, it is still impossible for us to say with any certainty just what we have done in extirpating the pancreas to cause all these changes, and the further the matter is studied the more complex seem the possible relations which exist, not only between this organ and the tissues which are especially concerned in the assimilation and metabolism of the foodstuffs of the body, but also the relations which it bears to the nervous system and to other organs or groups of organs which are important to the economy in a somewhat similar way.

The pancreas has a complicated structure and it seems clear that its functions are manifold, for on the one hand by its secretions, which are poured into the intestine, it plays an extremely prominent rôle in the preparation of all classes of food for absorption, while on the other hand there still remain the functions which we can see so obscurely in their relation to general metabolism and which are apparently quite independent of this external or intestinal secretion. The nature of these latter functions must form our subject for discussion to the exclusion of the former.

Nearly everyone in these days of ferments thinks of this influence of the pancreas as being carried out by the aid of some chemical material which is secreted into the blood-stream, and only Pflüger has maintained that there is no such internal secretion, but that the results of extirpation are due to injuries to the nervous system at one point or other. The idea of a chemical internal secretion is suggested and supported by the observations on other organs whose influence over metabolism is great, and for some of which an extract can be obtained which will practically take the place of the organ if it be destroyed. Such direct proof can hardly be brought for the pancreas, but still the evidence which I shall recount is so strong that we can hardly escape from the conclusion that there is an internal secretion even though we may not say exactly how and where it acts.

The simplest case in which we can study the functions of an organ is perhaps that in which these functions are abolished. There are many conditions in which we suspect an insufficiency of the pancreas and many others in which similar symptoms are due to other things, and although these two throw light on the function of the pancreas, it is perhaps best to base our considerations chiefly on the results of extirpation of the gland. This is promptly followed in all animals by the appearance in the circulating blood of an excessive amount of sugar, much of which passes into the urine, causing glycosuria. The organs lose their power to store up glycogen, there is a very great increase in the breaking down of proteins and of fats, the animal becomes emaciated and in some cases, owing probably to the abnormal decomposition of the fat, there appear in the blood and urine various acid substances, beta-oxybutyric and diacetic acids and acetone, which are very poisonous and often cause death in human beings the subject of diabetes by producing the so-called diabetic coma.

All of this is obviated by the presence of the pancreas, and not necessarily the whole pancreas; a portion of it is sufficient to maintain the animal in health, as was shown by Minkowski, who transplanted a part, with its blood-vessels, into the abdominal wall and removed the rest.

This being so, the question at once arises as to what part of the pancreas is responsible for this function and what is the mechanism of its action. I shall pass over here with but brief mention the experiments of Pflüger in which he contends that the separation of the pancreas from the duodenum and the tearing of nerves is responsible for glycosuria, for, as we shall see, much greater injury can be done with no such effect. The whole subject of the relation of the pancreas from an anatomic point of view, and especially of the relation of the islands of Langerhans to glycosuria and diabetes, has been so well reviewed by Sauerbeck that there is but little to add to what he brings forward. Briefly, the dispute hangs on whether the islands of Langerhans alone possess this all-important function or whether the pancreatic glandular substance in general is concerned; and it is well known that basing their opinions on pathologic cases, Opie, Ssobolew and many others hold to the view that the prevention of glycosuria, etc., is a specific function of the islands, while Hansemann, Herxheimer and others find the evidence for this inclusive and maintain that diabetes is due in each case to an inadequate functioning of the whole pancreas. The theory as to the special relation of the islands of Langerhans to diabetes was suggested to Opie by the discovery of a case of diabetes mellitus in which while the pancreas in general was practically normal the great majority of the islands of Langerhans had undergone a hyaline metamorphosis and were thus thrown out of function. On the other hand, it is possible to ligate the pancreatic ducts and thus to cause the atrophy of all the acini of the gland without affecting the islands of Langerhans, which have no connection with the ducts, and in this condition no glycosuria results. Even clearer are the results of an experiment which I described in a recent publication in which a portion of the pancreas was ligated off from the rest and allowed to undergo atrophy for a year. At the end of that time its place in the

mesentery, marked out by a black ligature, showed only a thin film of opalescent tissue composed practically entirely of islands of Langerhans. At this time the remainder of the pancreas was extirpated and after a transient glycosuria the dog recovered completely and was able to take by mouth nearly 40 gm. of glucose at one dose without showing any glycosuria. The subsequent extirpation of the film of tissue which had been left behind caused the development of the most intense and persistent glycosuria. The inference seems justified that the islands of Langerhans alone are able to maintain carbohydrate metabolism.

Interesting results which bear on the nature of the pancreatic function are brought forward by Forschbach, who produced the condition of parabiosis in two animals. The effect of the extirpation of the pancreas in one was annulled by its connection with the other. Since this was a vascular connection only, nervous influences could be ruled out and the symptoms must have been prevented by some substance passing from one animal to the other. In spite of this apparently conclusive evidence of the existence of some internal secretion of the pancreas we have not been able to demonstrate it satisfactorily by positive methods as in the case of the thyroid, although Zuelzer claims to be able with a deproteinized extract of the pancreas to annul the glycosuria which follows pancreatectomy. Indeed, we are not even informed as to where such a secretion must exert its function.

It has been shown that in most cases after extirpation of the pancreas, the liver and other normal depots are extremely poor in glycogen, and Ivar Bang makes the statement that the function of the internal secretion of the pancreas is to control the storage of sugar in this form—without it there must be an excess of soluble sugar in the blood and consequently glycosuria. A moment's reflection will make clear, however, that this could not in itself explain the phenomena of pancreatic diabetes, for when the pancreas is extirpated in hungering and glycogen-free animals there suddenly appears, without the intake of any carbohydrates, a great excess of circulatory sugar and glycosuria. The disturbance is far deeper than the mere inability to polymerize and store sugar. There is actually a new formation of sugar from proteins and from fats; even the tissues are consumed, and that portion of their molecules which will form sugar is set free as such in the circulating blood. Nor can we find a satisfactory explanation in disturbances in the activity of diastatic ferments which set free the sugar from its polymerized form. It seems quite possible that the pancreas may control this in some way, allowing only so much as is necessary to be turned into the circulation, so that when its influence is lost, mobilization of the sugar is too rapid. In this sense it is actually found (Zuelzer, Falta and others) that the addition of pancreatic extract to adrenalin will prevent the production of glycosuria by that substance, and that the stimulation of the pancreas by pilocarpin will in some cases also prevent the production of adrenalin[1] glycosuria. Still it is obvious as before that this cannot be the reason for the changes in pancreas diabetes, for as we have said, they appear in hungering animals in which there is no glycogen to saccharify so that the injury must be still deeper.

When sugar is carried to the tissues by the blood and set free in the tissues it is oxidized to furnish warmth and energy, but it appears that this oxidation is not easy unless the sugar be first split into somewhat simpler substances, a process which may be spoken of as glycolysis and conceived of as being carried out by a glycolytic ferment. The most earnest efforts have been made to determine the existence of such ferments in the body and if possible to ascertain the relation they bear to the pancreas. The results have been roughly as follows:

Lepine and others have declared the existence of glycolytic ferments in all tissues—not merely in the pancreatic secretion—and have regarded them as the universal agents promoting the oxidation of sugars. Stoklasa and his pupils find in all organs a ferment which decomposes carbohydrates with the formation of alcohol and carbon dioxid, and Feinschmidt, too, speaks of glycolysis as an independent process not even necessarily bound to the living cell. On the other hand attention has been called more recently to the possible part played by the pancreas in this process. Schade thinks of the whole process of decomposition of sugar as probably a catalytic process for which there are many analogies, and suggests that the internal secretion of the pancreas may be a catalyzer. Rahel Hirsch has found that there is a "proferment" in the pancreas which aids glycolysis in the liver; and about the same time Cohnheim announced in several papers that he had demonstrated that an extract of the pancreas was actually necessary to glycolysis in the muscles. By studying a mixture of glucose and muscle juice he showed that very little glycolysis (evidenced by the disappearance of the sugar) occurred, but that if an extract of pancreas were added the sugar disappeared very rapidly. This extract, he states, can be boiled and is soluble in alcohol; it is therefore not a ferment, but behaves as an activator to the enzymes normally present in the muscle. When added in excess it inhibits the action of the enzymes, possibly by deviating it from its relations with the sugar. This forms a very tempting explanation of the hyperglycemia in pancreatic diabetes, and it is just at this point that we feel it most likely that the internal secretion of the pancreas should act. Arnheim, Rosenbaum, Hall, De Witt and others have supported him, but Claus and Embden have repeated his experiments as exactly as they could and have found no effect from the pancreatic extract on the disappearance of sugar. With all possible modifications they have repeated their work, but the result is the same and they offer no explanation unless it be the obvious possibility that bacteria may have played a part, an objection which may be made to all these complicated experiments in which nutritive solutions must be kept for hours in a thermostat. Cohnheim replies that their results depend on neglect of the inhibition by excess produced by the activator or perhaps on the use of salt solution in their extracts, but admits that unless special care be taken to get the muscle free from blood its juices alone are active to a certain degree. All these experiments were performed with admixture of antiseptics, and Stoklasa rather hotly objects that this removes them far from physiologic conditions. It seems true that they would be crude and not entirely satisfactory even if the results were in unison, but with such contradictions among competent workers it is difficult to estimate precisely the standing of the pancreatic activator. In these experiments, further, no attention is paid to the end-results of the reaction—the first splitting of the sugar which renders it incapable of reducing copper is as far as they go.

If, however, we could feel sure that without the pancreatic secretion no glycolysis or oxidation of sugar

1. In this article the term "adrenalin" is used in quoting the work of European and American authors without reference to any particular firm's make.

could occur, would that explain all the features of pancreatic diabetes? It is known that the general oxidation is maintained at about the normal level and it seems evident that the lack of carbohydrate metabolism merely requires the intensification of protein and fat metabolism with the results mentioned above.

From all this it appears that the direct demonstration of the nature and mechanism of the influence of the pancreas on metabolism is in no very satisfactory state. Its extirpation produces profound disturbances which are far more intense than can be produced in any other way, while we are as yet practically unable to annul these effects with any extract from the gland.

That it does not act quite independently of the other organs of internal secretion is evident, however, from a whole series of observations on the effects of hypersecretion or hyposecretion of these organs on the supposed field of activity of the pancreas. In nearly every instance the occurrence or non-occurrence of glycosuria has been adopted as the test and a complicated network of effects has been woven about this test. In itself glycosuria can be produced by a great variety of measures, some of which act by way of the nervous system; others, such as cantharidin, the salts of many metals and phloridzin, seem so to affect the kidneys that they become permeable for sugar and allow of a glycosuria even when there is little or no hyperglycemia. This latter group we may set aside at once, but the others seem to bear a closer relation to the activities of the pancreas itself, or, at any rate, to the structures which it influences. Thus the diabetic puncture of Claude Bernard which consists in puncturing a certain point in the floor of the fourth ventricle of the brain, the stimulation of sensory nerves which acts reflexly, the direct stimulation of the splanchnic sympathetics or their chemical stimulation by asphyxia or asphyxiating agents such as ether, morphin, etc., or by drugs such as caffein, diuretin, etc., all produce glycosuria with hyperglycemia. Some of them act on the more sensitive central nervous elements, while others, such as caffein and adrenalin can stimulate the peripheral terminations of the nerves. In accordance with this the effects of some are annulled by cutting the splanchnics, while others are not.

Nishi, in studying diuretin glycosuria, cut the sympathetic nerves one after another and found that the glycosuria depended on the transmission of impulses, not to the liver, but to the adrenals; hence he thinks that the action of the sympathetics is through the mechanism of epinephrin secretion. Extirpation of the adrenals removes their influence in the way of producing glycosuria, and as Zuelzer, Dohrn and Marx, Frouin and Mayer have shown, this operation annuls the glycosuric effect even of extirpation of the pancreas. It is evident then that the adrenals are extremely important as a link in the production of glycosuria by any of these insults to the nervous system. It is difficult to conceive of the exact mechanism of its action, but we have the following evidence. Injections of adrenalin produce hyperglycemia and glycosuria and greatly intensify the glycosuria already existing in depancreatized dogs. Efforts have been made to explain this as a direct action on the pancreas (Herter, Edmunds and others), and Edmunds regards it as not specific but merely a vasoconstrictor action which incapacitates the pancreas by rendering it anemic; but this position seems to be rendered untenable by the observations of Eppinger, Falta and Rudinger and others that in the absence of the pancreas the glycosuria is intensified by adrenalin. On the other hand Zuelzer, Embden and others have found that when it is added to the blood used in perfusing an excised liver it causes the liver to liberate sugar into the hepatic vein in far greater amount than when normal blood is used. No observations seem to have been made on the isolated action of the adrenal on the muscles with regard to the liberation of sugar. Taking all these things into account it seems that the weight of evidence is in favor of the idea that the adrenal secretion is the instrument of the nervous effects on the sugar depots of the body; that it by itself can in some way stir up the tissues to set free sugar into the circulation or mobilize the carbohydrate. The exact nature of this process, which seems to be a chemical one, is not clear to us. The experiments which are made by injecting adrenalin are very violent and crude and the dose must be enormous as compared with the amount of adrenal secretion normally poured into the veins. Ritzman has found that if one use a sufficiently dilute solution (1 to 2,000,000) it can be allowed to flow into the vein at the rate of 2 c.c. per minute and never produce glycosuria. If a more concentrated solution be used or this solution run in faster glycosuria does result. Evidently the pancreas is able to overcome and oxidize any excess of sugar set free by so small an amount, but is overtaxed by the results of the larger dose, and this gives us a hint as to the extraordinarily delicate balance maintained by the organs with regard to the circulating sugar. If, now, as Zuelzer has shown, we introduce the lymph from the thoracic duct, which may be supposed to contain much of the pancreatic secretion, with the adrenalin the balance is restored and no glycosuria results. One may perhaps regard the whole picture as being made up, not of the antagonism of two organs, but rather of the exercise of two separate functions—metabolism of sugar and glycolysis—the balance between which it is not easy to maintain in such rough experiments, so that when sugar mobilization predominates, glycosuria ensues.

Another phase of the question is brought to light when we consider the relation of the thyroid to these functions. The introduction of an excess of the thyroid secretion often leads to glycosuria. This is the explanation generally given of the glycosuria in Graves' disease. On the contrary, the extirpation of the thyroid (preserving the parathyroid intact) has quite the opposite effect. Then it is difficult to produce alimentary glycosuria (McCurdy, Falta, and others); the injection of adrenalin no longer produces glycosuria in the strength of solution formerly used (R. Hirsch, Falta, and others); and the glycosuria following the administration of ether is no longer obtainable (Grey and de Sautelle). When tetany is produced by simultaneous removal of the parathyroids the results are quite different, and the glycosuria is even accentuated (Falta). Even the glycosuria following pancreatectomy is diminished by extirpation of the thyroid.

In all these experiments, too, the criterion by which the results have been judged is the occurrence of glycosuria, but it seems that a deeper insight into the nature of the processes might have been gained if they had been considered with regard rather to the steps which precede glycosuria.

Thus King, who carried out his work in my division of the Hunterian Laboratory, found that the addition of thyroid juice to the Cohnheim mixture of pancreatic and muscle juice with sugar, markedly inhibited the glycolysis. This seems to give a simple explanation of the significance of the thyroid in this connection, and we have the balance of the adrenal function of mobilizing sugar and the pancreatic function of glycolysis

affected by a chemical substance. It is as though, as Schade suggests, the glycolytic ferment were a sort of catalyzer which might be thought of as affected by the thyroid secretion as catalase may be affected by cyanids. This seems to me much simpler than the hypothesis that the activity of the pancreas itself is in some way inhibited by the activity of the thyroid.

We know so little about the action of the hypophysis that it is difficult to discuss it here; but it may be recalled that glycosuria sometimes occurs in disease of the hypophysis, and Borchardt has been able to produce it by injections of hypophyseal extract.

Eppinger, Falta, and Rudinger have made a great many of these experiments, and have added much to the knowledge of the interrelation of the organs of internal secretion. These interrelations they attempt to express in the form of a scheme in which the thyroid, pancreas, and chromaffin system are shown in their relation to one another. In this triangle the thyroid and pancreas are represented as mutually inhibiting one another's activities; so, too, the pancreas and chromaffin system; while the thyroid and chromaffin system promote the activities of one another. On this basis they can explain, without too much forcing, all or nearly all of the phenomena. It must be said, however, that this seems to be merely stating in rather vague phraseology the results, of which we know so little, of the mechanism, and there can be no doubt, in spite of the possible value of this scheme in suggesting further experiments, that a satisfactory explanation can rest only on definite chemical studies.

To me it seems more probable that the chromaffin system is concerned, not with the activity of the pancreas, but with the mobilization of sugar; that the pancreas is similarly concerned, not with inhibiting the activity of the adrenals, but with causing the glycolysis of the free sugar; while the secretion of the thyroid, if in excess, interferes with this glycolytic action of the pancreatic ferment. How far the other organs of internal secretion are concerned in this usually smoothly working mechanism remains to be discovered.

The literature on any other internal secretion of the pancreas is relatively meager, and most investigators take it for granted that the appearance of fat in the stools in depancreatized animals is merely the effect of the loss of the fat-splitting ferment of the external secretion. The lipemia which sometimes occurs even in human cases of diabetes can not be explained thus, however, and Lombroso has shown that more fat appears in the stools than is taken in with the food, and that it has different characters and a higher melting point than that fed. It must be reexcreted into the intestine. The ligation of the pancreatic duct seems not to produce any such extreme disturbance in the fat metabolism, and on that account the suggestion is made that there may be an internal secretion governing this. Further investigations of this point are necessary.

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Fear.—Fear as an emotion is based on the instinct fundamental to all organisms, that of self-preservation, and so serves an important purpose in safeguarding the individual. In the presence of danger the emotion of fear spurs one on either to flight or to resistance against the threatened danger. When one knows that his life is threatened, his consciously felt emotion of fear is easily explained as a result of that danger. Man's reasoned or rational fears are the fear of death, the fear of pain, and the dread of disesteem. "To the fear of death are ultimately referable all emotions of fear, whether conscious or not; and pain is a motive for dread even when it is not mortal."—W. K. Walker, in *Pennsylvania Medical Journal.*

PRESENT KNOWLEDGE OF THYROID FUNCTION

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At the present time we know that the thyroid gland fills a very important function in the animal body. We do not know the precise details as to how this function is fulfilled, and because of our lack of knowledge on this point we may more readily turn the discussion to the consideration of theories than is the case in regard to the other tissues which have been more thoroughly studied and concerning which we have more definite information.

One of these theories is deserving of recognition merely for the purpose of rejection. I refer to the ideas sponsored by Blum, Notkin and others—the so-called neutralization theory. These investigators have stated that the function of the thyroid is to detoxicate certain metabolic products which arise in the animal body, and this action they conceive to take place in the thyroid itself and to be accomplished by the union of iodin with the metabolic product. By such a means the toxic, deleterious effects of these products are prevented, and one of the strongest arguments in support of their theory has been the experiment of Blum who showed that if the secretion from the thyroid gland was artificially combined with iodin, it no longer had characteristic thyroid effects. The more completely these proteins are saturated with iodin the less harmful they are.

Such being the case, it follows that if the extracts of the gland contain little iodin, we should expect very active toxic effects from it since the metabolic toxins have been only partially rendered innocuous. Second, it must follow that if the action takes place only within the thyroid gland, removal of the thyroid must render it impossible for thyroid function to be subserved in such an animal. We know that both of these propositions are incorrect. We know that if thyroid protein is administered to animals and patients in whom the gland is entirely lacking, or pathologically so damaged as to be incapable of function, it causes such physiologic changes as to make the animal in most respects normal. The proper functioning of the extract does not require the presence of the gland.

It must be evident, therefore, that the physiologic action of this secretion is exerted on other tissues than the thyroid. We know, likewise, that thyroids containing little iodin show comparatively little of the characteristic thyroid effect, while those containing much iodin are much more active physiologically. There is absolutely no reason whatsoever for supposing that the artificial addition of iodin to the thyroid protein *in vitro* is in any way comparable to the action which is accomplished by the epithelial cell of the gland. No artificially prepared iodin-containing substance has an effect similar to that of thyroid secretion, or can be used as a substitute for thyroid secretion. Both of these conclusions are well established and they are sufficient to controvert successfully the belief that the thyroid function is entirely accomplished within the gland itself. The function of the gland is to produce a substance which is absorbed into the circulating fluids of the body to act on some of the distant tissues, and it probably is not of benefit to the animal for physiologic purposes except as reserve material while it remains in the gland. Except for the fact that the gland does not have a definite duct,

there is no reason why it should be classed with the glands of internal secretion.

We know that the physiologically active portion of the gland secretion is a protein substance containing iodin in a specific organic combination. The iodin is probably combined with some aromatic group in the molecule. Precisely what its structure is, we do not know. No substance having similar properties has ever been prepared in the laboratory. It does not seem probable that there is only one kind of protein substance which contains iodin. There is a very wide variation in the size of the normal thyroid gland and likewise in the iodin content of the protein taken from glands of individuals who have no apparent thyroid abnormality, as regards either structure or function.

If one attempts to separate the proteins from the thyroid gland into various groups, one finds it possible to obtain a number of different fractions, all of which are true proteins and all of which contain iodin, though the iodin content varies widely. I have never been able to obtain a definite protein or proteose from the thyroid absolutely free of iodin. This is contrary to the findings of many other investigators. The protein which in my experience answers all the physiologic requirements is readily prepared from normal thyroid glands by extracting the pulverized tissue with physiologic salt solution, filtering through gauze and paper pulp and from this clear filtrate obtaining a precipitate by acidifying with acetic acid and heating to 44 C. This protein corresponds to the thyroglobulin described by Oswald. From the clear filtrate other proteins and proteoses may be separated by heating to a higher temperature, and by the addition of various salts. As previously stated, all these protein fragments contain iodin, but the protein first separated contains a much larger percentage of iodin than any of the others. In extracts of beef and pig glands, acetic acid gives an abundant precipitate before heating, but in human and sheep glands, the heating is necessary to cause a separation of protein.

It seems probable that the thyroid function is dependent on the presence of iodin in the molecule and most investigators are agreed that the physiologic activity of the secretion is at least roughly proportional to the iodin content. I believe that we do not yet have convincing evidence that iodin-free thyroid has characteristic function. Hunt has devised a quantitative method for measuring thyroid activity depending on the protection of mice to aceto-nitrile poisoning. In his hands this method has yielded most remarkable results. In my judgment the iodin value is quite as accurate and much simpler in application.

We have yet no evidence to show that differing qualitative effects are produced by thyroid from different types of glands with different iodin values. The normal thyroid contains alveoli filled with the colloid substance which is largely made up of the particular globulin having characteristic thyroid activity. The quantity of this particular protein varies widely in different glands. No structure in the body shows such marked changes in its histologic characteristics as the thyroid.

The facilities for the absorption of this material are apparently not such as to provide for taking up a large quantity in a short space of time, and the question arises as to how large an amount of this material must enter the circulation in a unit of time in order to satisfactorily carry on the thyroid function. As far as we can judge from experimental conditions, the sensitiveness of different animals and different individuals to thyroid shows wide variations. In some instances I have produced noticeable effect in a human adult by the hypodermic administration of 5 mg. of protein prepared as above from normal glands containing between 0.32 and 0.36 mg. of iodin per gram of fresh gland. In other cases, 0.01 gm. has shown decided activity, while 0.06 gm. usually shows quite pronounced effects even in normal individuals. In several cases of cretinism I have found 0.01 gm. of this protein has been effective in completely ameliorating symptoms. In myxedema, 0.03 gm. of these proteins taken each day has kept the symptoms completely under control. On the other hand, I have had individuals taking 0.5 gm. daily for considerable periods without producing any other effect, as far as could be determined, than that of general well-being. There is then a very wide variation between the limits of the amount required to maintain health and the amount which an individual may take without causing marked physiologic disturbance. Furthermore, if so small a quantity of protein as that mentioned is sufficient to satisfy the needs of the average individual for thyroid function, we need not suppose that the venous blood or the lymph coming from a thyroid should contain very much of this secretion. Three-hundredths of a gram of this protein put into the blood which flows through a normal gland in one day (and this has been estimated by Kraus to be fourteen times the total volume of blood in the body) would not give an appreciable addition in iodin. It furthermore indicates what a large factor of safety there is in a normal thyroid gland. Such a gland would average about 20 gm. in weight from which there might be obtained 3 gm. of the protein above used or one hundred times the quantity sufficient to fill the demand for this secretion in the case of a myxedematous patient.

Since the isolation of iodothyrin by Baumann it has been believed that the thyroid function might be served by the use of this small fragment of the protein, but it is my belief that the thyroid function is not in all respects to be filled by this fragment. The physiologic as well as the most effective method of administering thyroid secretion to an animal is to give the same biologic sort of secretion by hypodermic injection. I have in many instances been unable to get the same quality of effect or to produce the same change in the metabolism of an animal by administering thyroid by mouth as could be obtained when giving it directly into the circulation. We do not know on what tissue or set of tissues the thyroid secretion acts. It does not seem to me probable that it is to be compared to the exclusive action of secretin, but rather that most of the tissues in the body are in some way affected by this substance, perhaps in part through the medium of the nervous system. We know that it is connected in some way with the function of oxidation in the body. By the administration of thyroid to a cretin or patient with myxedema it is possible to increase the absorption of oxygen from 20 to 75 per cent. There is a corresponding increase in the amount of heat given off from the body. The removal of the thyroid in an animal will cause diminution in the absorption of oxygen which may be again increased by thyroid feeding. Administration of thyroid to a normal animal will cause an increase of from 10 to 40 per cent. in the oxygen demand. In comparing myxedema with Graves' disease, we find a very marked contrast in this respect. With the former the absorption of oxygen, the food requirement, the energy exchange is often not more than 40 to 50 per cent. of the normal, while in the latter we see these factors very much increased, occasionally to nearly double the normal. We are again confronted by our

lack of knowledge when we find that these changes do not always follow thyroid administration.

On the same diet the nitrogen excretion is less when the animal is deprived of the thyroid and markedly increased when thyroid is again given. Such a result is probably merely secondary to the question of oxidation in the different tissues. We do not know why this increased oxidation and nitrogen loss follows administration of thyroid, but Schryver has found that the liver of animals that have been fed on thyroid show during the first twenty-four hours more rapid autolysis than controls. Wells has found that the addition of thyroid to the autolyzing liver has no effect in this respect, but such an experiment is not exactly comparable to Schryver's and does not controvert the accuracy of his results. It seems probable some change has been effected in the liver cell making it more susceptible to autolytic destruction. But a point of great interest is that if the animal is fed for some time on thyroid the rapid autolysis is not seen. A somewhat similar phenomenon is seen in some cases of thyroid feeding to obese persons. A small quantity of thyroid will in the beginning cause a comparatively rapid loss in weight from 10 to 30 pounds, but then a refractory period is reached when a large quantity will cause little or no changes. The character of the nitrogenous metabolism, that is, the distribution of various nitrogenous constituents in the urine, is not markedly different in cases of myxedema and Graves' disease, but I have recently observed instances in which toxic symptoms of somewhat varying type have been associated with high ammonia and high rest nitrogen fractions in the urine and in which complete symptomatic relief and normal nitrogen divisions in the urine followed the administration of thyroid. It is not possible to say that these individuals were suffering primarily from a lack of thyroid function since there was no other evidence than the facts which I have stated.

The nitrogen requirement to maintain equilibrium is increased by the addition of thyroid. It has been observed that the protein-sparing power of carbohydrate is less rapidly manifested in the metabolism experiments on animals being fed with thyroid. We may compare such experiments to conditions found in patients suffering from exophthalmic goiter. We find during certain of the acute phases of the disease that the nitrogen requirements are very high indeed. I have seen a patient in the toxic phases lose weight and show a marked nitrogen loss when she was receiving a diet so rich in carbohydrate that she had an alimentary glycosuria; and with a nitrogen intake of 22 gm. the nitrogen loss at the same time was 4.5 gm. It is not possible to feed such persons a sufficient quantity of any form of diet to entirely prevent nitrogen loss. Such patients may show an elevation of temperature, 1 to 1.5 degrees. They are usually very nervous, although physically weak, and it is evident that we are not dealing here with physiologic conditions in metabolism in which the usual procedures for preventing nitrogen loss are available, but rather that the excessive quantity of thyroid secretion has so altered the metabolic processes that we have a toxic destruction corresponding to what takes place in some of the infections. Such a phase of the disease does not usually last long.

The thyroid function is in some way concerned with carbohydrate metabolism. Repeated observations have been made showing that the administration of thyroid renders the assimilation or retention of carbohydrate more difficult. Certain facts in regard to this matter have been observed clinically. In severe Graves' disease an alimentary glycosuria is not rare and occasionally a severe and rapidly fatal diabetes develops after this disease when all the other symptoms have been relieved or have abated. In myxedema, on the contrary, the limits of assimilation for carbohydrate are much above those observed normally. In relation to this matter, I will mention an instance of severe fatal diabetes occurring in a woman of 53 after recovery from Graves' disease. In this case, the administration of thyroid to the patient caused a marked increase amounting to 90 per cent. in the quantity of sugar excreted as well as marked increase in the excretion of diacetic acid, oxybutyric acid and acetone. The patient at this time had no symptoms of Graves' disease. There was no reason to suppose that the diabetes was in any way concerned with the hyperfunction of the patient's own gland.

One can scarcely discuss this question without referring to the theories which have been advanced by Falta and his co-workers. The supposed interrelations between the thyroid, pancreas and adrenal, which they have worked out, are suggestive and possibly point to a future explanation of some of these matters. The experimental results which they have used thus far to substantiate their theory are only suggestive, and in my judgment they have proved nothing more than that further investigation along those lines is necessary.

The reaction on the pupil of the enucleated frog's eye has been used to show an antagonistic action between the adrenal and the thyroid. Such a reaction indicates that we may get some antagonistic action between these two glands, but although we must suspect that the thyroid is closely related with other glands in the body, and we may say that we know that such interrelations probably exist, the majority of these theories regarding these interrelations are based on pathologic and clinical observations and not on accurate experimentation.

Attempts have been made to demonstrate that the thyroid gland serves a particularly valuable function in combating infections in the body. The expressed juices of the thyroid have been allowed to act directly on bacteria with apparent bactericidal effect, but not in any respect more than was obtained from extracts of the liver and kidney. The quantity of the alexin in the blood has been found to be increased in those animals to which thyroid has been given, and it is a commonly observed fact that cretinous and myxedematous patients do not bear infections well, while on the other hand certain observers believe that every infection stimulates the thyroid to additional activity. It is certainly open to question whether a specific effect in infections is to be ascribed to the thyroid. It rather appears that the effect is a general one and it seems improbable that the thyroid function is one of the specific means by which the body protects itself from infectious diseases.

From the evidence which is now obtainable I think we must conclude that the thyroid gland furnishes a hormone which may be present in the blood within wide limits in the condition which we call health, and which stimulates a variety of tissues to a physiologic, and at times a pathologic, degree of activity.

Occupation in Treatment of Neurasthenia.—Healthy occupation of body and mind, says D. Ferrier in the *Practitioner*, never does any harm to the most pronounced neurasthenic, but the reverse. If work at first is hard, it becomes easier by degrees, and patients who find the régime a hard one should be told that it is better to be ill at work than ill in idleness. The misfortune is that so many neurasthenics have neither the determination nor the courage to submit to the necessary training of their morals, and thus go to swell the crowd of able-bodied valetudinarians.'

REPORT OF A CASE OF EPIDEMIC ANTERIOR POLIOMYELITIS

DIAGNOSIS IN PREPARALYTIC STAGE BY LUMBAR PUNCTURE

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The patient, a young man of 21, was a member of the freshman class at Princeton, where he had been in attendance for five weeks before the onset of symptoms. At his home in Bernardsville, N. J., no cases of poliomyelitis were known to have occurred. At Princeton during the summer there had been several cases of the disease and in the college three cases, all in the freshman class, two of them fatal. The patients had all come from infected localities, though the disease did not appear until those attacked had been from two to five weeks in Princeton. The men did not know each other or room in the same dormitory, the only point of contact being in commons or recitation room. The patient had been under my care for a number of years. The only significant thing in his past history was pneumonia four years ago, and a rather run-down condition a year ago, at which time tuberculosis was suspected. He had had a slight cold the week before from which he had practically recovered. Three weeks before the onset of symptoms he had attended the funeral of one of the men who died of the disease. On October 29 he suffered from malaise, headache and chilly sensation, but felt well enough to take the train for Washington. On the next day, however, as the symptoms continued and became more severe, he returned to college and, as his bowels had not moved since the 29th, on the evening of the 30th he took a dose of salts and vomited immediately; the vomiting was repeated several times during the night, but there was no movement of the bowels. The following day, October 31, there was slight pain in the back of the neck and sense of fatigue in the gluteal region.

The patient was first seen by me on the evening of October 31, fifty-six hours after the onset of symptoms. At this time his temperature was 101 F., his pulse 90, respiration 22. The pharynx was slightly reddened, the tongue coated, eyes normal, heart and lungs normal. The abdomen was soft, a trifle distended and tympanitic; there was no enlargement of the spleen and no rose spots. The reflexes were exaggerated, patella, Achilles tendon, wrist and elbow. An ankle-clonus was obtained on both sides. Kernig's and Babinski's signs were not obtained. There were no paralyses or even muscle weakness. The neck seemed a trifle stiff, but only in a strained position when the patient sat upright in bed. In the dorsal decubitus the chin was readily brought forward to the chest. As a positive diagnosis was impossible, the patient was brought to New York where he was seen in consultation by Dr. T. C. Janeway, who concurred in the negative results of the previous examination. A blood-count and blood-culture were made the same evening. : red cells, 5,020,000; hemoglobin, 92 per cent; color index, 0.92; leukocytes, 12,000; small lymphocytes, 30.2 per cent.; large lymphocytes, 4.8; polymorphonuclear, 64.6; eosinophils, 0.2; basophils, 0.2; plasmodia of malaria, none. The Widal test was negative in dilution of 1 to 20. The urine was acid clear,; albumin, faint trace; sugar, none; indican, trace; specific gravity, 1,028. Microscopic examination showed few leukocytes. In view of the negative finding on physical examination, and in the blood and urine, it was resolved to wait for the result of the blood-culture, which might be expected to show *Bacillus typhosus*, were it present, and in the absence of this, if symptoms persisted, to introduce a needle into the spinal canal.

On November 1 the patient was more comfortable, though there was some pain in the lumbar region. High temperature persisted. The bowels, which had not moved since the 29th, were finally moved by calomel salts and rectal irritation. The results were foul-smelling.

On November 2 fever persisted. The second blood examination shows a slight fall in polymorphonuclear cells and increase in the small lymphocytes. Polymorphonuclears were 59 per cent, lymphocytes 34 per cent. The physical examination was still negative, but all the reflexes were less active and the ankle-clonus had disappeared. Rigidity of the neck as before. The diagnosis at this point was still obscure. The patient might have typhoid fever, gastro-intestinal toxemia, one of the more slowly developing cases of meningitis, or poliomyelitis. As the blood culture was reported sterile, lumbar puncture was performed. There was a rapid drop flow and 10 c.c. of fluid obtained. The fluid was practically clear; only a slight shimmering appearance was noticed on shaking the tube. Dr. Simon Flexner, of the Rockefeller Institute, who kindly offered to examine the fluid, reported as follows:

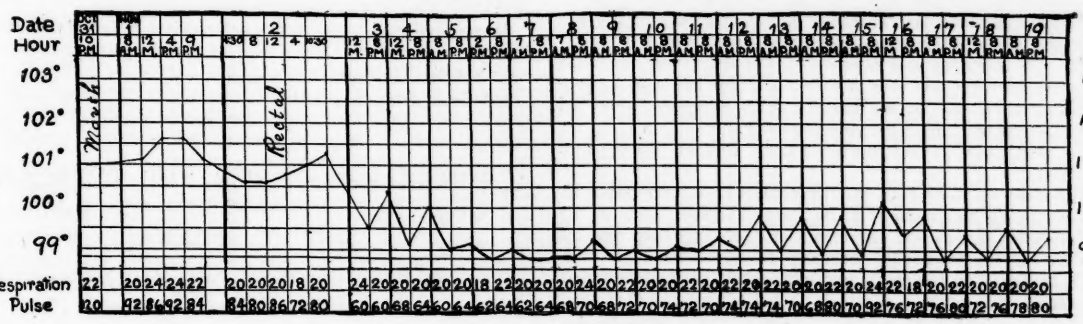


Chart of case of poliomyelitis.

"The first specimen, received on November 3, consisted of a limpid fluid, almost but not quite clear, and yet not turbid, showing on agitation a faint opalescence. On centrifugalization, the fluid yielded sediment containing a considerable number of small and a small number of large lymphocytes, and a very few polynuclear leukocytes. There were no red blood-corpuscles present. The perfectly clear supernatant fluid gave a marked protein reaction with Noguchi's butyric acid test. The specimen, therefore, contained excess of white corpuscles, chiefly lymphocytes, and of protein. The condition of the fluid resembled that seen in monkeys inoculated with the virus of epidemic poliomyelitis, just before the onset of paralysis."

As a result we felt that as tuberculous meningitis could be fairly excluded, a diagnosis of anterior poliomyelitis could be reasonably made; furthermore, that paralysis, if it ensued, would come shortly.

November 3, 9 a. m., temperature was still 101 F. The patient complained of muscular weakness and had some difficulty in turning in bed. There was, however, no paralysis of any muscle group. The reflexes of the upper extremities were still obtained, but the patella reflexes could be obtained only when the patient made a voluntary effort such as traction of the hands. No urine had been passed since 6:30 p. m. on November 2, but there was no evidence of enlargement upward of the bladder. The bowels had been moved with difficulty. At 2 p. m., inability to urinate continued. The bladder by

percussion extended 2 inches above the symphysis pubis. On catheterization there was no free flow of urine and pressure over the abdomen was required. There was some general weakness in the legs and a sense of weight in the right leg on flexion. At 6 p. m. a complete examination of the muscular system was made which showed paralysis of the left hamstrings, weakness of the quadratus lumborum and the lower belly of the right rectus, and slight weakness of the erector spini group. There was a sense of weight in the right thigh when the leg was lifted in extended position. The calf peronei, extensors of feet, abductors and rotators of thigh were normal; muscles of head, face, eyes, shoulder-girdle and arms normal. The wrist, elbow, biceps and Achilles reflexes were present; knee-jerks lost on both sides. Paralysis thus appeared at the end of the fifth day of the disease, and the muscle groups affected showed the presence of disease of lumbar enlargement of the cord with fairly general distribution. With the appearance of paralytic symptoms the temperature fell, gradually reaching normal on November 6.

On November 4, lumbar puncture was again performed and 10 c.c. of fluid obtained by a rapid drop flow. The leukocytes showed a slight increase; the polymorphonuclears dropped to 63.5 per cent., the lymphocytes to 27.5 per cent. Dr. Flexner's report justified the belief that the height of the irritative stage had passed. It was as follows:

"The opalescence is less, so that the fluid is, to all intents, 'clear.' The sediment obtained by centrifugalization showed still an excess of lymphocytes, but the supernatant fluid showed a diminished reaction for protein. This second fluid resembled that of monkeys after the paralysis had set in."

On the following day weakness of the extensors of the left foot and the anterior tibial group was first noted.

Pain in the back and muscles of the thigh was becoming very troublesome and was relieved only by baths of a temperature from 105 F. to 110 F. This symptom persisted until December 10 with varying intensity.

On November 7 the patella tendon reflexes were again obtained.

November 9, Kernig's sign was obtained, but no Babinski. This symptom was thought to be due to the shortening of the posterior thigh muscles. Paralysis of the hamstring muscles was of varying intensity. As early as November 7 the legs could be flexed on the thigh, but with difficulty in the ventral decubitus. The bladder paralysis lasted for twelve days, and the bowels were moved only with great difficulty for a month.

On November 27, after the temperature had been normal for ten days, the electric reactions were tested by Dr. J. Ramsay Hunt.

Reaction of degeneration was nowhere present. All muscles responded to faradism, but the left hamstring and left anterior tibial, extensors of the foot and peronei were most sluggish in response, though all the muscles of both legs and thighs were affected. The reflexes of the lower extremities had again become exaggerated and a patella-clonus was obtained.

Within a month the patient was up, and in six weeks walking, though at the time of writing there is a slight drop-foot on the right side which requires correction by orthopedic apparatus in order to prevent contraction of the stronger calf muscle. The prognosis is good for a practically perfect functional result.

As to treatment, from the start a nasal spray of a weak hydrogen peroxid solution was used, on the theory that the unknown organisms might be eliminated through the nose and reinfection thus produced. In infected monkeys Flexner has proved the infectiousness of the nasal mucous membrane. Counter-irritation to the spine by cupping and mustard was also applied early. Hexamethylenamin (urotropin) was administered in the hope that formaldehyd might be set free in the spinal cord. For the pain nothing proved so efficient as the hot tub bath, which also enabled the patient to move with ease his weakened muscle groups.

To summarize, one is impressed with the difficulty of diagnosis of this disease in its acute stage, in which it may resemble any of the infections, especially typhoid fever, influenza or intestinal toxemia. The very slight rigidity of the neck and the increase in the activity of the reflexes, which at that time we thought might be due to a hypersensitive nervous system, were suggestive, but only the presence of an epidemic put us on our guard as to the possibility of the correct diagnosis.

The exaggeration of the reflexes, gradually diminishing, and disappearing at the time of paralysis, only to become again exaggerated later, is another point in evidence of the general nature of the disease which cannot be exclusively confined to the anterior horn cells.

The inestimable value of lumbar puncture cannot be too strongly insisted on. By its means a diagnosis was established, and the fact that paralysis would probably follow determined twenty-four hours before its onset. Finally, by a second puncture twenty-four hours after the onset of the paralysis, the fact was determined that the height of the paralysis had passed and that the paralytic stage was nearing an end. As a matter of fact, within eighteen hours we had the last evidence of progression in the lesion. The puncture had, in this case, both prognostic and diagnostic value. In view of the number of normal lumbar punctures reported, it is fair to say that Dr. Flexner reports that the increase in lymphocytes and increased protein reaction are present in the spinal fluid of his experimental monkeys for a period of only a few days and incidentally that this is the first case in which he has followed the corresponding reactions in man.

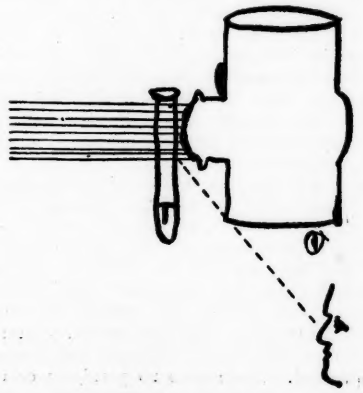
In conclusion, I wish to thank Dr. Flexner for his courtesy in examining the spinal fluid and for his many suggestions and keen practical interest in the case.

113 East Fifty-Sixth Street.

A SIMPLE METHOD FOR THE DETECTION OF MINUTE QUANTITIES OF ALBUMIN IN URINE

M. B. KATZENSTEIN, B.Sc., M.D., M.Sc.
PITTSBURG,

On account of the difficulty experienced in detecting the presence of minute quantities of albumin in urine, I have been constantly on the lookout for a satisfactory method. I have found a solution of the difficulty, and



Method for the detection of minute quantities of albumin in urine.

the method applies both to contact and to the heat and acid tests. The method is a very simple one and consists in passing rays of light through the fluid and looking at it at right angles to the rays, the principle being the same as that of seeing particles of dust in a ray of sunshine. For light I use the original bull's-eye lantern

used by nose and throat men for their reflected light. The detection of albumin is most satisfactorily done in connection with the heat and acid method. After heating and adding acid to the specimen the test-tube containing the fluid is held directly in front of the bull's-eye lantern and the specimen viewed from a point at right angles to the rays of light. In specimens in which I and others have failed to detect any cloudiness in all other lights, the cloudiness has stood out plainly when submitted to the above procedure. The urine should always be filtered, especially for the contact test. Any bull's-eye lantern will suffice. The great advantage of this method lies in the fact that it can be done at any time—night or day.

ABORTIVE CASES OF POLIOMYELITIS

AN EXPERIMENTAL DEMONSTRATION OF SPECIFIC IMMUNE BODIES IN THEIR BLOOD-SERUM *

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It has been pretty generally recognized, since the publication of Wickman's studies on epidemic acute anterior poliomyelitis in Sweden in 1905-06,[1] that cases of this disease may run their course without resultant paralysis. The evidence on which the occurrence of such so-called "abortive" cases is predicated is, briefly, the following:

Especially in epidemics, cases of acute anterior poliomyelitis are encountered showing all gradations in the degree and extent of paralysis. In the same group may be found cases resulting in extensive and lasting paralysis; cases with permanent paralysis of slight extent; cases in which the patients have transient paralysis, recovering completely within a few weeks or even a few days; other cases in which there is no definite paralysis, but merely muscular weakness, of short duration; still others in which the only motor disturbance is ataxia, tremor or a transient ocular disturbance such as diplopia or nystagmus. Finally, within the same group are seen cases of illness exhibiting only the symptoms of a general infection, usually accompanied by symptoms indicative of meningeal, spinal or encephalitic irritation, but without definite motor disturbances.

The diagnosis of acute anterior poliomyelitis in these cases is suggested usually by their close association with typical cases of the disease rather than by the distinctiveness of their symptoms. The symptoms are, however, sufficiently similar to the pre-paralytic symptoms observed in paralytic cases, and in many instances sufficiently different from the symptoms observed in the more common infectious diseases to justify a provisional diagnosis of poliomyelitis. The similarity of these abortive cases to cases of frank poliomyelitis in the early stage, the signs of involvement of the nervous system, their close and constant association with frank paralytic cases, and the gradation of symptoms above mentioned had convinced many observers of the etiologic identity of abortive and paralytic cases of poliomyelitis even before any light had been thrown on the subject by the study of experimental poliomyelitis.

It has recently been noted by several observers that monkeys inoculated with the virus of poliomyelitis occasionally pass through an indefinite illness without resultant paralysis, clinically similar to abortive attacks as observed in man.

It has been shown by Levaditi and Landsteiner,[2] Römer and Joseph[3] and Flexner and Lewis[4] that the serum of monkeys which have recovered from poliomyelitis, mixed in suitable proportions with an emulsion of the virus and allowed to remain in contact for a sufficient length of time, renders the virus inactive, so that when injected into fresh monkeys it fails to produce the disease.

Netter and Levaditi,[5] and Flexner and Lewis,[4] have demonstrated the same property in the serum of human beings who have recovered from acute poliomyelitis. This property has been found by all the above observers to be absent from the serum of normal persons and monkeys, and has therefore been considered a specific property, the demonstration of which in the serum justifies the inference that the subject has passed through the infection of acute anterior poliomyelitis.

Netter and Levaditi,[6] availing themselves of this test, have also demonstrated this germicidal property against the virus of poliomyelitis in the serum of a suspected abortive case, thereby giving additional confirmation of the etiologic identity of such cases with frank poliomyelitis.

The clinical history of the abortive case tested by Netter and Levaditi is as follows (translation from the French):

"CASE 3.—Henriette G., sister of Emile (see below), was with a nurse in L'Aveyron, returning in good health Dec. 15, 1909. Three weeks after her return the child fell off, lost appetite, became cross, showed less disposition to run about, complained of pain behind the knees when the legs were touched, and of the arms when they were pulled. These symptoms, which attracted the attention of Dr. Ergbischoff, caused no uneasiness to the rather heedless parents, who refused to show us the child on February 7. The mother thought the child was suffering from *mal du pays*. Whatever the trouble, it all disappeared in the course of three weeks. The child regained her normal appearance and showed every appearance of health the latter part of March."

A brother, Emile, 6 years old was taken ill either a few days before or a few days after this child (the dates given are not clear as to the sequence of cases) with a typical attack of acute anterior poliomyelitis, resulting in lasting paralysis of a leg and an arm.

The experiments which we here report are similar to the above experiment of Netter and Levaditi, undertaken on a more extensive scale, designed to throw some light on the diagnosis and epidemiologic significance of a class of cases encountered by one of us,[7] in a field study of acute anterior poliomyelitis at Mason City, Iowa, and other points in that state during the summer of 1910.

*From the Hygienic Laboratory.

1. Wickman, Ivar: Beiträge zur Kenntniss der Heine-Medinschen Krankheit (Poliomyelitis acuta und verwandte Erkrankungen), Berlin, 1907, S. Karger.

2. Levaditi, C., and Landsteiner, K.: Compt.-rend. Soc. de biol., 1910, lxviii, 311.

3. Römer, P., and Joseph, K.: München med. Wchnschr, 1910, lvii, 568.

4. Flexner, S., and Lewis, Paul A.: Experimental Poliomyelitis in Monkeys, THE JOURNAL A. M. A., May 28, 1910, p. 1780.

5. Netter, A., and Levaditi, C.: Comp.-rend. Soc. de biol., 1910, lxviii, 617.

6. Netter, A., and Levaditi, C.: Compt.-rend. Soc. biol., 1910, lxviii, 855.

7. Frost, W. H.: The Field Investigation of Epidemic Poliomyelitis (What the Health Officer Can Do Toward Solving a National Problem), Pub. Health Rep., Nov. 18, 1910, p. 1663; Discussion of the Epidemic of Anterior Poliomyelitis at a Meeting of the Iowa State Board of Health, Iowa Med. Jour., Nov. 15, 1910, p. 236.

In Mason City, Iowa, a town of about 14,000 inhabitants, there occurred from April to September, 1910, forty cases of undoubted acute anterior poliomyelitis, resulting in typical flaccid atrophic paralysis. At the same time there occurred a considerable number of cases of illness with symptoms suggestive of the early symptoms of acute poliomyelitis, but not resulting in paralysis, and often of such mild character as not to come under the observation of any physician.

REPORTS OF CASES

Blood-specimens were obtained in the latter part of November from a number of these cases, whose clinical histories are given in abstract below. For the histories in several of these cases we are indebted to various physicians of Mason City. Other patients were not seen by any physician during their illness and the only histories available were such as could be given several weeks later by the patients and their families.

CASE 1.—*Control.*—Reported by Dr. C. M. Swale, Mason City. C. T., male, aged 48, laborer, was taken sick June 24 with a chill, fever, pains in the legs and back, stiffness of neck, some delirium. On the third day there was paralysis of both thighs and legs and both upper arms, and partial paralysis of the forearms. When last seen, Nov. 24, 1910, the lower limbs and upper arms were still paralyzed, flaccid and atrophic, but showing some improvement. This is a typical case of acute anterior poliomyelitis, included in our series as a control.

CASE 2.—Reported by Dr. B. F. Weston, Mason City. Mrs. W., 22, waitress, was taken sick the latter part of June, 1910, with fever and indefinite general symptoms. After several days she became paralyzed in both lower limbs. She was admitted to a hospital about one week after onset. She was said to have had, at that time, a flaccid motor paralysis of both lower extremities which, however, became spastic within a few days. When the patient was seen the latter part of July, 1910, both legs and thighs were quite spastic. No active motion was possible except of the toes and slight flexion of the left knee. Passive motion was limited to partial flexion of the thighs and slight flexion of left knee—almost none of the right knee. The patellar reflexes greatly exaggerated on both sides; ankle-clonus on right side; sensation for touch and pain was normal. Examination was otherwise negative. The patient's general health was good.

Nov. 25, 1910, the left leg could be moved, but rather awkwardly. The right leg showed little, if any, improvement. Patellar reflexes were still exaggerated, more so on the right side. There was no ankle-clonus and no atrophy.

The spasticity of the paralyzed limbs, exaggeration of reflexes and absence of atrophy in this case indicated a lesion in the upper motor segment, either in the motor cortex of the brain or in the pyramidal tracts of the cord. The case was included in our series in order to ascertain the diagnosis, since it represents a rare clinical type of poliomyelitis, the diagnosis of which has always been uncertain, and whose occurrence has been a matter of some dispute.

CASE 3.—Reported by Dr. C. E. Dakin, Mason City. H. G., a woman aged 23, nurse, was taken sick suddenly June 24, after a long walk in the hot sun, with violent occipital headache, vertigo and stiffness of the neck, causing some retraction of the head. She had chilly sensations, vomited, was extremely prostrated, and felt "crazy." Temperature was normal, pulse 80. The next day she had pains in the legs and back, with tenderness along the spine, and was very restless. There was no further vomiting; the patient was constipated. The third day she complained of cramps and a sensation of numbness in the left leg, and found, on attempting to get out of bed, that this leg was weak. These symptoms gradually improved, so that in a week the patient was able to be up with no sign of paralysis. The spine, however, remained tender for several days and sensitive to jarring. A week later she had a slight recurrence of similar symptoms, with a pharyngitis.

There was no elevation of the temperature at any time in this case, which was seen daily by the attending physician. The patient knew of no direct association with cases of poliomyelitis, within a month prior to her illness. She was, however, at the time of her illness living at the house of a physician who had recently attended patients who were suffering from this disease.

CASE 4.—Dr. C. E. Dakin, of Mason City, gives the following account of his own illness, the nature of which was hardly suspected at the time. He was taken sick about July 1, 1910, the onset being gradual. He lost appetite, was constipated, had a coated tongue and foul breath. He suffered from a persistent occipital headache, not relieved by treatment, and from severe pains in the upper dorsal and lumbar region. The neck was stiff, so that it was painful to bend the head forward although it could be rotated without pain. No retraction of the head was noted, but it was found that the most comfortable posture was lying on the back with the head extended over a pillow placed under the shoulders. He felt extremely nervous, irritable and inclined to worry over trifles. There was no elevation of temperature. These symptoms, which reached their height about July 7, gradually subsided within the next week, except the general nervousness and irritability, which persisted a good deal longer. During this time Dr. Dakin was not confined to bed, and continued his practice.

TABLE 1.—INOCULATIONS IN SERIES 1 *

Monkey No.	Serum from	Description of Case	Age	Result in Monkeys
16	Case 1 (control)....	Frank poliomyelitis	Adult.	Has remained well.
17	Case 2	Suspected poliomyelitis with spastic paralysis.	Adult.	Has remained well.
18	Case 3	Suspected poliomyelitis without paralysis (abortive).	Adult.	Has remained well.
19	Case 4	Suspected poliomyelitis without paralysis (abortive).	Adult.	Has remained well.
20	Case 5	Suspected poliomyelitis without paralysis (abortive).	Adult.	Has remained well.
21	Case 6	Suspected poliomyelitis without paralysis (abortive).	Adult.	Has remained well.
25	Case 7 †	Suspected poliomyelitis without paralysis (abortive).	16	Paralysis all extremities on sixth day.
26	Case 8 †	Suspected poliomyelitis without paralysis (abortive).	Child.	Paralysis all extremities, trunk and neck.
22	Case 9	Suspected poliomyelitis without paralysis (abortive).	Adult.	Has remained well.
23	Case 10	Suspected poliomyelitis without paralysis (abortive).	Adult.	Has remained well.
24	Case 11 †	Suspected poliomyelitis without paralysis (abortive).	.....	Paralysis all extremities on eighth day.
27	Control JR	Normal.....	Adult.	Paralysis of hind legs tenth day, all extremities twelfth day; chloroformed.
27A	Control JR	Normal.....	Adult.	Paralysis of all extremities tenth day.

* Each monkey inoculated intracerebrally Nov. 30, 1910, with 0.5 c.c. of a mixture of 5 per cent. emulsion of fresh spinal cord (of Monkey 15) 0.5 c.c.; serum to be tested, 0.5 c.c.; fresh normal serum, 0.1 c.c. Mixtures allowed to stand one hour at 37 C. and twenty hours at 15 C. before injection. ‡ Refers to same serum in Series 2.

A child of his family had an attack of acute poliomyelitis with slight peroneal paralysis in May. Also about June 23 Dr. Dakin attended a child suffering from what was clearly an abortive attack of acute poliomyelitis.

CASE 5.—The patient, Mr. S., aged 30, merchant, in Mason City, was not seen by a physician. The history was obtained some two months later from the patient and his family. He was taken sick rather suddenly about June 19, with headache, pain in neck, back and legs. The temperature was not determined. The patient felt ill for a week or more, but was not confined to bed; thought he had the influenza. For more than a week after recovery one leg remained weak and "rheumatic." No previous association with any case of poliomyelitis was known. About three weeks later a 3-year-old son (the only child of the family) developed a typical case of poliomyelitis, resulting in paralysis of the left thigh and leg.

CASE 6.—Reported by Dr. C. E. Dakin, Mason City, who first saw the patient October 25. E. D., 45, farmer, residing about 7 miles northwest of Mason City, about Oct. 16, 1910, began to feel fleeting, neuritic pains in various parts of his body. There was no special pain, tenderness or stiffness of neck or back. A chronic indigestion became much aggravated, causing gastric distress, especially after eating. The patient lost appetite, and was constipated; the tongue was coated and breath foul. He was unusually nervous, irritable and sleepless. He improved gradually, returning to his usual state of health within two or three weeks.

A boy living in the same house was taken sick with acute poliomyelitis Oct. 10, 1910, and died October 16. The other two members of the household remained well at this time; but, as stated in connection with Case 7, both had suffered somewhat, similar attacks about August 1.

CASE 7.—P. G., a girl aged 16, living about seven miles northwest of Mason City, was taken sick July 11 with headache, slight backache, pains in the knees, nausea and vomiting; diarrhea; fever doubtful. There was no stiffness of neck. The patient was in bed part of one day. Felt ill and unusually weak for several days thereafter.

There was no known contact with any case of poliomyelitis prior to onset. There had, however, been a considerable gathering of neighbors at this house one week prior, and the patient and other members of the family went back and forth to Mason City, where poliomyelitis prevailed at that time.

This was the first of a group of generally similar cases occurring in this and neighboring families. Other cases of similar illness occurred in this same family as follows: sister, aged 6, July 14; two sisters aged 7 and 8 respectively, July 15 or 16; brother, aged 10 (Case 8), July 22; father, aged 49 (Case 9), August 3. Two other members of the family, one adult and one aged 13, remained well.

It was stated that cases of similar illness had occurred about the same time in several neighboring families, all of which had been associated more or less closely with these cases, viz.:

Family B.—One case, adult, July 29.

Family W.—Five cases, about August 1.

Family D.—Two cases about the same time. This is the family of Patient 6. The two who were sick at this time remained well during the subsequent illness of the other members of the household.

Family M.—One case, date not known.

Family E. B.—One case, some time after August 15.

Family C. B.—Two cases (one of them Case 10), July 31.

CASE 8.—R. G., brother of Patient 7, aged 10, was ill with sudden onset about July 22; had fever, sore throat, headache, pains in neck, back and limbs; was at first restless, then drowsy. After staying in bed one day he felt better and got up, but still had pain in the back. He fell down several times this day, apparently because of weakness of the legs. The third day he felt well, except for weakness, which gradually disappeared.

CASE 9.—W. G., father of Patients 7 and 8, aged 49, farmer, first noted, August 3, while driving his wagon, that the jolting caused him pain all over. Later in the same day he had a headache, chilly sensations and fever. The pain continued all day, chiefly in the back, neck and shoulders. The patient was constipated and had no appetite. The second day his ankles felt stiff and sore, and he felt extremely weak and uncertain on his legs. After the second day he felt much better, except for the weakness, which gradually improved, leaving him in his usual health.

CASE 10.—Reported by Dr. C. E. Dakin, Mason City. C. B., aged 48, carpenter, about July 31 began to have an occipital headache, was constipated, had no appetite; felt very weak, tired and faint. He was troubled at times with vertigo, brought on by sudden turning of the head. The cervical and dorsal spine was tender. The headache and vertigo were worse when in the sunlight. There was some photophobia. The pupils were contracted and reacted sluggishly to light. Reflexes otherwise normal. These symptoms continued for about a week and for a much longer time the patient suffered from indigestion and continued to feel weak and easily tired.

The wife of this patient was taken sick about the same time with practically identical symptoms. These two had been between July 14 and 31, to a house where a child was sick at the time with a pretty definite abortive attack of poliomyelitis. One of them had also been to a house where two sisters of Patients 7 and 8 had visited while sick. A member of the household of Patients 7, 8 and 9 was said to be a frequent visitor at the house of Mr. B. He and his wife are the family "C. B." mentioned under Case 7.

CASE 11.—Reported by Dr. Fred Albert, Mason City. J. A., male, aged 7, residing on a farm about 5 miles northeast of Mason City, was taken sick suddenly June 30 or July 1, 1910. When seen by Dr. Albert, July 2, he had a temperature of 102.5

TABLE 2.—INOCULATIONS IN SERIES 2 *

Monkey No.	Serum from	Description of Case	Age	Result in Monkeys
30	Control JFA ‡	Normal.....	Adult.	Has remained well to date.
31	Control CHL	Normal.....	Adult.	Paralysis and death fifth day.
32	Control WHF	Normal.....	Adult.	Paralysis, forelegs and neck, thirteenth day.
33	Control W ‡	Normal.....	Child.	Very doubtful, slight illness; sixth to twelfth day loss of appetite, nervousness, excitability, slight irregular rise of temperature.
34	Control R ‡	Normal.....	Child.	Very doubtful, slight illness; sixth to twelfth day; symptoms as above but less marked.
35	Case 11 †	Suspected abortive case.....	Child.	Has remained well to date.
36	Case 7 †	Suspected abortive case.....	16	Paralysis of all extremities ninth day; died ninth day.
37	Case 8 †	Suspected abortive case.....	Child.	Has remained well to date.

* Conditions of experiment the same as in Series 1, except that virus used was a *1 per cent.* emulsion of fresh cord (of Monkey 29). Inoculations Dec. 24, 1910. † Refers to same serum in Series 1. ‡ Refers to same serum in Series 3.

TABLE 3.—INOCULATIONS IN SERIES 3 *

Monkey No.	Serum from	Description of Case	Age	Result in Monkeys
38	JFA (see monkey 30) ‡	Normal.....	Adult.	Paralysis of all extremities thirteenth day; chloroformed.
39	R (see monkey 34)‡	Normal.....	Child.	Paralysis of all extremities tenth day; chloroformed.
40	W (see monkey 35)‡	Normal.....	Child.	Paralysis of neck and forelegs tenth day; chloroformed

* Conditions of experiment the same as in Series 1, using a *5 per cent.* emulsion of fresh spinal cord (of Monkey 9). Inoculations Jan. 12, 1911. This series is a control on Series 1. † Refers to same serum in Series 2.

F., had a severe occipital headache, pain and tenderness of the spine, and some inflammation of the tonsils. The next day the temperature was normal and the headache and pain and tenderness of the spine had disappeared.

Two other children in the same house were taken sick between June 29 and July 1 with similar symptoms. One recovered within a few days, while the other developed typical poliomyelitic paralysis of the arms.

Cases 3 to 11 inclusive are representative of a class of cases which were reported to be quite common in and around Mason City during the epidemic of poliomyelitis. While there is a considerable variety in their symptomatology there is, in most cases, a fairly distinct syndrome, viz., headache, more commonly occipital; pain and tenderness along the spine; neuritic pains and hyperesthesia of the limbs; a marked degree of restlessness or irritability; prostration out of proportion to the severity of the other symptoms; some gastro-intestinal derangement (anorexia, nausea, constipation or diarrhea); occasionally other symptoms of nervous derangement, as vertigo, photophobia, delirium, muscular paresis, disordered reflexes. The temperature was definitely determined to be normal in Cases 3, 4 and 10, and found elevated (102.5° F.) in Case 11. In the rest of the cases no exact information is available, as the patients were not under the observation of a physician during the acute stage. Dr. Dakin,[8] of Mason City, who has reported elsewhere 36 cases of poliomyelitis, including Cases 3 and 10 of the above series, describes, as very characteristic, a staring, terror-stricken facial expression, which he noted also in Cases 3, 6 and 10 of our series.

Blood-specimens were obtained from all these cases by venepuncture during the latter part of November. The serum was withdrawn after coagulation and kept in closely stoppered sterile bottles. Repeated tests showed all specimens of serum to be sterile when used.

The virus used was originally obtained from the Rockefeller Institute for Medical Research through the courtesy of the director, Dr. Simon Flexner. It had been propagated through a long series of monkeys at the Rockefeller Institute and found very uniformly virulent. We have found it virulent for all the fresh monkeys which we have inoculated other than those mentioned in the following series.

SERIES 1.—Monkey 15, inoculated with the above virus, developed complete paralysis of the hind legs on the seventh day; it was chloroformed and necropsy performed the same day. A 5 per cent. emulsion of the fresh spinal cord was prepared in normal salt solution, and filtered through paper to remove gross particles. One-half cubic centimeter of this emulsion was added to an equal amount (0.5 c.c.) of each of the serums to be tested.

To each mixture was added 0.1 c.c. of fresh normal human serum (J. R.). As controls, two mixtures were made with normal human serum (J. R.). The mixtures of serum and virus were kept 1 hour at 37 C., then placed over night (about 20 hours) at 15 C. A series of monkeys was inoculated in the brain, each monkey receiving 0.5 c.c. of one of the mixtures of virus and serum, Nov. 30, 1910.

The two control monkeys receiving the mixtures of normal serum and virus developed typical paralysis on the eighth and tenth days respectively.

The monkeys receiving the mixtures of virus with the serum of Patients 7, 8 and 11 also developed equally typical paralysis on the seventh, fifth and seventh days respectively. All the others have remained well up to the present time (Feb. 4, 1911).

It will be noted that the three specimens of serum which failed to affect the virus were from young persons (Patient 7, aged 16; Patient 8, aged 10; Patient 11, aged 7). The remainder of the serums were from adults. This suggested two possibilities:

1. The serum of normal adults may have considerable germicidal properties for the virus.

2. The serum of children, even when they have had an attack of poliomyelitis, may not develop germicidal antibodies; or may develop them in smaller amounts than the serum of adults.

SERIES 2.—To test these hypotheses, we inoculated another series of monkeys with exactly the same technic, except that, instead of a *5 per cent.* emulsion of spinal cord we used a *1 per cent.* emulsion (fresh cord of Monkey 29, inoculated December 13; paralysis of hind legs December 23; chloroformed and cord removed December 23).

In this series we used again the serum of Patients 7, 8 and 11, and for controls took the serum of three normal adults (J. F. A., C. H. L., and W. H. F.) and of two normal children (R. and W.). Granting an equal concentration of the virus in the two cords used in series 1 and 2 (Monkey 15 and Monkey 29), each specimen of serum would now be mixed with the same *volume* of emulsion as in Series 1, but with *one-fifth of the amount of virus.* Also, the amount used in inoculation (0.5 c.c.) would represent only one-fifth of the amount of virus inoculated into the animals of series 1.

The results in this series were somewhat irregular. The monkeys receiving the serum of two of the normal adults (C. H. L. and W. H. F.) developed poliomyelitis on the fifth and thirteenth days respectively. The monkey which received the serum of Patient 7 developed paralysis of all extremities on the eighth day. None of the other monkeys, including those which received the serum of Patients 8 and 11, the serum of one normal adult (J. F. A.), and of the two normal children, have developed paralysis up to this time. Two of the monkeys, however (those receiving the serum of the two normal children), appeared about a week after inoculation to have an indefinite illness, manifested by slight rises of temperature, loss of appetite, nervousness, and undue excitability. Whether these may be considered abortive attacks of poliomyelitis is extremely questionable.

These results would indicate that in this series we had approached the limit of proportions in which normal human serum may exert a neutralizing effect on the virus of poliomyelitis, or else had approached the minimum effective amount of virus for inoculation. They indicate pretty clearly that the serum of Patient 7 had no unusual germicidal properties, but leave the other two cases (8 and 11) in doubtful status.

SERIES 3.—Three specimens of normal serum having been found capable of neutralizing the virus in the proportion used in Series 2, that is, against equal volumes of a *1 per cent.* emulsion of virus, it remained to test these three specimens again under the conditions of Series 1. Accordingly we inoculated another series of monkeys, using a *5 per cent. emulsion* of virus (fresh cord of Monkey 9, inoculated Jan. 7, 1911; died fourth day; gross and histologic lesions typical).

The serums used were the same specimens which had shown neutralizing properties in Series 2, viz., from one normal adult (J. F. A.) and two normal children (R. and W.). The technic and proportions were exactly as in Series 1.

All three monkeys came down with typical paralysis between the eighth and the twelfth days.

The three series of experiments are presented in the accompanying tables.

SUMMARY

The results of these experiments may be summarized as follows:

Normal Human Serum.—The results in Series 2 indicate that normal human serum may have a germicidal action on the virus of poliomyelitis. If this is so, however, the action has quantitative limits which clearly differentiate it from the action exercised by the serum of persons who have had poliomyelitis as shown in

8. Dakin, C. E.: Iowa Med. Jour., Nov. 15, 1910, p. 229.

Series 1 and 3. No appreciable difference has been demonstrated between the normal serum of adults and of children in regard to their action on the virus.

Serum of Patients Who Have Recovered.—As shown by the workers above cited and by our results, the serum of persons who have recently recovered from frank attacks of poliomyelitis exhibits a germicidal action on the virus considerably greater than that exhibited by normal serum. Serum from a person suffering from paralysis of spastic type showed the same properties, thus confirming the clinical evidence that acute poliomyelitis may cause paralysis of this type.

The serum of six out of nine patients (66.7 per cent.) who had recently recovered from suspected poliomyelitis without paralysis (abortive cases) showed the same germicidal action as the serum from a frank case of poliomyelitis.

In the serum from the other three suspected abortive cases of poliomyelitis we were unable to demonstrate any germicidal property beyond that shown by normal serum. These three specimens of serum were all obtained from young persons. These three cases clinically resembled poliomyelitis more than did some of the adult cases; and the symptoms were, on the whole, equally severe. The following possibilities suggest themselves:

1. The cases may not have been poliomyelitis.
2. They may have been poliomyelitis, but, if so, antibodies were either formed in less amount, or disappeared more rapidly than in the adult cases.

The experimental evidence on which the specificity, constancy and quantitative relations of this reaction must be estimated is scant. So far as it goes, however, it justifies the inference that the reaction as demonstrated in our experiments is specific.

We feel justified in concluding that the diagnosis of acute poliomyelitis has been established in six of our nine suspected abortive cases. The diagnosis in the other three is not cleared up by the experiments. The clinical and epidemiologic evidence of poliomyelitis in these cases must be weighed against the absence of a serum-reaction of unknown constancy.

The facts here presented have a significant bearing on the diagnosis and epidemiology of acute anterior poliomyelitis.

DIAGNOSIS

The generally accepted criterion for diagnosis of poliomyelitis has been the development of paralysis or at least definite weakness. It has been urged that the attempt to make a diagnosis on any clinical evidence less than this would result in hopeless confusion; and this is partly true in the present state of our knowledge of the disease. In the cases of our series, however, poliomyelitis had been suspected on clinical evidence alone and confirmed by biologic test in 66.7 per cent., a fact which would indicate that the diagnosis of abortive cases of this class is not wholly a matter of guess-work, provided special attention has been directed to poliomyelitis, as was the case in Mason City. No laboratory diagnostic methods of demonstrated reliability and universal application have been evolved. The early examination of cerebrospinal fluid is the most reliable laboratory method at present known. Lumbar puncture for diagnosis is hardly justifiable, however, unless some consideration of the safety, either of the patient or of the community, makes an accurate diagnosis of special importance. Total and differential leukocyte counts offer a promising aid to diagnosis, but much more work will be necessary to establish the reliability of this method. But even in the absence of any specific diagnostic methods, much light can doubtless be thrown on the subject by a careful and conservative study of all cases which may reasonably be suspected of being cases of poliomyelitis, paying especial attention to examination of the nervous system and to association with cases of frank poliomyelitis.

Until the clinical recognition of poliomyelitis is placed on a more reliable basis there will remain an indeterminable factor in its epidemiology, a factor whose significance can only be surmised at present. Conclusions from epidemiologic data will have to be correspondingly conservative.

A more detailed discussion of abortive cases, as observed in Iowa, and of their epidemiologic relations will be reported in a forthcoming bulletin of the Hygienic Laboratory.

Therapeutics

PROPHYLAXIS OF SCARLET FEVER

Every physician, no matter how limited or specialized he may attempt to make his practice, is likely to encounter a case of scarlet fever, and to have his opinion asked in regard to what should be done to prevent the transmission of the disease to others. Even if he does not personally encounter the disease, he cannot avoid being asked the same question, apropos of some case he has not seen, by an anxious mother or a father seeking for positive information from one whom they believe to have the knowledge of an expert. It reflects no credit on his scientific attainments, it does not increase the confidence in him of his patients, if he cannot state promptly, clearly, concisely and positively what should be done by the family in which the disease occurs to prevent its spread to other individuals, what the family which does not have it, but is afraid of getting it, should themselves do, as well as what they have a right to expect others to do, in order to prevent the spread of the disease.

To the striking development of knowledge of sanitary science and preventive medicine which has taken place during the last three or four decades we are indebted for the wider recognition of the fact that scarlatina, scarlet rash and scarlet fever are synonymous terms, that they do not indicate different diseases, but one and the same disease. Formerly, many of the laity and not a few physicians believed, or at least said, that scarlatina and scarlet rash were different from scarlet fever. But numerous careful observations have shown, and the profession generally has learned, that while scarlet fever may be, and often is, a very serious disease with high temperature, severe sore throat, intense and widely spread eruption, followed by copious desquamation, the fever may be slight or entirely absent, the throat may not show more than slight congestion, the eruption, if not entirely absent, may be not very pronounced in appearance, not widely spread over the body and of rather transient duration, while the desquamation may be so slight as to be hardly recognizable.

Furthermore, it is now generally recognized not only that the very mild cases may be followed by the most serious sequelæ which are observed after the severe forms of the disease, and particularly by inflammation of the kidneys, but also that severe forms of scarlet

fever may be, and often are, contracted from patients whose symptoms have been exceedingly mild.

Scarlet fever differs from measles, with which it is often associated in discussions, and in popular thought, in the fact that everyone seems to be susceptible to measles, and to contract the disease on exposure, if he has not already suffered an attack; while many seem to be not susceptible to scarlet fever, and do not contract the disease after direct and frequent exposure. A possible explanation of this apparent immunity to scarlet fever may be, at least in some cases, that these immune individuals have in their earlier life passed through an attack of scarlet fever of so mild a type that no physician was called to the patient, or if one was called, he did not recognize the nature of the disease. This, however, probably does not explain all cases of apparent immunity. Undoubtedly there are many persons who never contract the disease except after unusual exposure. On the other hand, it is unjustifiable carelessly or wittingly to expose child or adult to the disease, no matter how mild the type may be.

At the outset of a discussion of the subject we are hampered by the lack of any definite, positive knowledge as to the exact nature of the disease, and the method in which it is transmitted from one individual to another. It has long been believed that the contagious element of the disease existed in the scales which occur in greater or less profusion during desquamation. At present there is a tendency to believe that the scales do not possess great power of transmitting the disease during all stages of desquamation, and especially toward the termination of that process. On the other hand, it has not been proved that the scales are innocuous, or that they become so at any definite period of the stage of desquamation. Consequently, it becomes of great importance to control the dissemination of these scales.

Furthermore, of late the belief has been gaining ground that the element of contagion exists actively and abundantly in the secretions from the throat and nose, and also in the discharges from the ear and from suppurating glands when they are present. Obviously then, the problem which confronts both family and physician, as well as sanitarian, is to control the dissemination of these various secretions, discharges, exfoliations, and the usual excretions.

The key to the mastery of the problem is a dual one and embraces first, isolation; second, disinfection.

The establishment of isolation often taxes severely the tact and good judgment of the physician. If the family is large and lives in a small house or apartment and on a limited income, and if the municipality of which they are citizens affords the luxury of an isolation hospital, or a hospital or wards of a hospital are set apart for the treatment of contagious diseases, obviously the easiest, and, for the family, the cheapest way out of the otherwise complicated situation is to transport the patient immediately to such an institution. Here he will be under the care of attendants who are accustomed to handling patients with the disease, and who are trained to exercise all the precautions necessary to prevent the spread of the disease.

But it is possible to make this disposition of the case in only a limited number of localities. Most towns have no special provision for taking care of scarlet fever, and in such cases the patients must be treated in their own homes. If the family has ample means and lives in a large house, a large room or a suite of rooms must be set apart for the exclusive use of the patient and the special attendant, who must be secured to give him exclusive attention. Such an apartment or suite should, if possible, be selected on the third floor of the house or at the end of a hall, so that the other members of the family will have no occasion to go near it. The room should be large and sunny, and all unnecessary articles, such as curtains, upholstered furniture, and ornaments, should be removed, so that there will be as few articles as possible to which the disease poison may adhere and which will need to be cleaned or destroyed after the recovery of the patient. The attendant should not invade other parts of the house. Food and other necessities should be left outside the door of the apartment occupied by the patient by another member of the household. Similarly, everything which requires removal from the infected apartment should be disinfected and placed outside the apartment, and thence carried away. The most important things which are likely to require removal are dishes, clothing, and excreta. These should be disinfected by being placed in suitable vessels and then allowed to soak for an hour in a 2.5 per cent. solution of phenol (carbolic acid). Things which are of little or no value and which are combustible, such as the remnants of food and pieces of cloth or paper which have been used about the room, should be burned. If the nurse finds it necessary to leave the patient's quarters, she should change all her outer garments outside of the patient's room, she should cover her hair, and avoid coming into close contact with anyone. These precautions of isolation should be carried out continuously and strictly until desquamation is entirely completed. During the period of desquamation the patient should be sponged or bathed once or twice a day with hot water (and if there are bath-room facilities the convalescent should have a daily hot tub bath), and then the skin should be anointed with adeps lanæ hydrosus (lanolin) which has been softened with almond (or other bland) oil, and perfumed to suit. Phenol (carbolic acid) ointments are inadvisable, as any absorption would irritate the kidneys. Sponging with alcohol is contra-indicated. After desquamation has ceased, the patient should remove all the clothing which he has been wearing, take a warm bath, with soap, and have his head well shampooed. Then he must dress himself throughout in fresh clothing.

After the patient has left the apartment it should be thoroughly disinfected. Formerly this was accomplished by burning sulphur in the room, but this has been superseded by formaldehyd, which is more efficient, is less injurious to the contents of the room, and is not more troublesome nor much more expensive. Drawers of bureaus and chiffoniers should be opened and their contents loosened, clothing should be hung on chairs or lines, and the bedding should be distributed so that the formaldehyd gas may easily penetrate everywhere. The 40 per cent. formaldehyd solution may be efficiently used by sprinkling it on wet sheets hung on lines stretched through the room. Keyholes and open spaces around doors and windows should be stuffed with cotton, cloth, or paper, so as to retain the gas in efficient concentration to disinfect the room. One pint of the so-called 40 per cent. solution should be used for a room of ordinary size. After twenty-four hours the windows of the room should be opened widely, and fresh air and sunlight should be allowed to enter freely and penetrate every part of the room. It should never be forgotten that outside air and sunshine are among the most useful of disinfectants. Carpets, rugs and bedding should be

hung outdoors, so as to be thoroughly exposed to the sun and wind. Such articles of clothing and bedding as are washable should be boiled for an hour.

When it is possible to carry out such strict isolation as has been described, there is no necessity of quarantining the rest of the family, but, unfortunately, such complete isolation is ideal, and can rarely be carried out in actual practice. Even when a large family occupies a few rooms, it is essential that one room be selected for the patient, and that he be kept in it constantly, and that the other members of the family be kept out of it entirely, except one who is selected to act as the attendant, usually the mother. Under such conditions it is usually entirely impracticable for the attentant to remain constantly in the room with the patient. She must frequently leave the room, not only to get things which the patient requires, but also to perform services for the remainder of the family. Under these circumstances it is desirable and is often entirely practicable that such members of the family as attend school, or work in stores or shops should leave home, and should live elsewhere for six or eight weeks. Those who are obliged to remain at home should avoid as much as possible coming into contact with the attendant. The latter should have several aprons, with sleeves, and large enough to cover all her other clothing. One of these she should wear constantly while in the patient's room. A sheet dampened with phenol (carbolic acid) solution, or other antiseptic solution, hung over the door is believed by many to assist materially in preventing the spread of the infectious agent.

Just here a word should be said of the physician's personal duty in order to avoid carrying the disease from house to house. It is generally believed by the medical profession that physicians who use even a moderate degree of caution rarely transport the disease from a patient to another individual, and when this does happen, the victim is usually a member of his own family.

Certain precautions he may wisely observe. He should endeavor so to arrange his calls that he will not go directly from a patient ill with scarlet fever to a family in which there is a child. On entering the house of such a patient he should put on a long cotton, linen or rubber coat, which should be left just outside the patient's door. He should avoid sitting on the bed, or allowing the bed-clothing to come in contact with his own clothing. He should not prolong his visit unnecessarily. Before leaving the room he should thoroughly wash his hands and dry them on a clean towel.

During the convalescence the patient should not be allowed to use books from the public library or the public school, and should use only such books, magazines and newspapers as can be burned when he is through with them, or when the period of isolation is ended. Neither should he be allowed to write and send letters through the mail or by messenger to his friends.

Can anything be done or any medicine prescribed which will prevent the development of scarlet fever in a person who has been exposed to the disease? Although many practitioners have been in the habit of prescribing medicine designed, so they claimed, to prevent persons exposed to the disease from contracting it or developing it, candor compels the statement that no drug or any treatment is known which will accomplish this result. Although belladonna has been extensively used for this purpose, and has been believed by many to have accomplished the prevention of the disease, there is no adequate reason for believing that it has ever produced this result.

If a physician feels inclined to do something, as he is often asked to do, it is perfectly legitimate to prescribe the use of an alkaline antiseptic gargle, but with the full realization on the part of the physician, even if he does not confide the fact to the family, that he cannot, thereby prevent the disease, though he may put the pharyngeal mucous membrane in a better condition to resist the invasion of pathogenic microorganisms, and consequently to lessen the severity of the inflammatory process in the throat should the disease occur.

Although often advocated, and sometimes used, the impregnation of the atmosphere of the room with antiseptics (phenol) and aromatic oils seems to be of no value in killing the germs or in hastening recovery. Various cresol preparations are recommended for this purpose, but their value is small, and the danger of too much absorption of phenol vapor causing kidney irritation is ever present. The fraudulent assertion that ozone-producing apparatus prevents the growth and dissemination of scarlet fever germs is little less than criminal.

It should not be forgotten that dogs and cats must be excluded from all patients suffering with contagious diseases, and this is especially true of scarlet fever. The doors and windows must be screened from flies, if it is the season for them.

Fatigue and the Hours of Labor.—After stating that the human body is the most efficient machine in existence, Dr. John B. Huber in the *Scientific American*, Jan. 21, 1911, says that the best surety against accident is an alert mind in a virile body, while, on the other hand, the ideal predisposition to accident is an exhausted, rundown, devitalized human machine. There is now no question, he says, of the reality of the relation between fatigue and accidents; in Europe this has been scientifically noted for practically all forms of human activity. Bank clerks make most of their mistakes in the late afternoon; and this appears to be one of the reasons for the comparatively early closing of such institutions, since bankers have found employees' mistakes to be expensive. Everyone now knows that dire calamity results when railway men work continuously too many hours. People should understand also that physicians are not to be overworked; and that rather than this, substitutes or assistants had best be willingly accepted; men who have in their charge the keeping of human health (the most precious thing in existence) must be vouchsafed normal minds in normal bodies. The part-time method of school attendance of children is, doubtless, often unavoidable. Still it has disadvantages; and of these by no means the least is that in the afternoons the minds of children are unfairly taxed, especially when they are made to grapple with such difficult subjects as mathematics, which should be a morning study, when the minds of children are clear and fresh. One here perceives the best of all arguments —from whatever viewpoint one chooses—for the eight-hour day for all forms of labor. For some kinds of labor even eight hours is much too long. It is melancholy to observe that for many employers the prevention of fatigue accidents can be brought about only by making them very expensive. A wise corporation, however selfish, will here instinctively reduce its hours of labor; for reasons of economy, if for no other. After all, it is gratifying to note that the essential parallelism of efficiency and humanity is being increasingly appreciated throughout civilization.

Correction in Salvarsan Technic Article.—In THE JOURNAL, Feb. 25, 1911, page 568, in line 8, instead of 15 c.c. read 25 c.c.

XUM

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 Dearborn Avenue . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, MARCH 4, 1911

CANCER IN FISH

Comparative pathology is rapidly adding much valuable material for our understanding of the biology of cancer, and we are in a fair way toward the establishment of a distinct branch of research in this direction. It certainly is of much significance that cancers, or growths which greatly resemble them, occur in all animal forms, at least in all vertebrates, and are not the unhappy heritage of the human race exclusively. We are coming to realize that not only our common domestic animals may succumb to cancer, but even the cold-blooded animals sometimes suffer the same fate. Typical malignant growths have been described in birds, reptiles, frogs, turtles, salamanders, eels, and especially in fish. Schmey,[1] who has recently reviewed the literature, has found reports of fifty-nine cases of tumors in fish, not including the large numbers of thyroid tumors described in certain epidemics in fish hatcheries.

At one time it was currently stated that cancer occurred in carnivora, but not in herbivora, which bit of evidence was eagerly seized and freely used by the vegetarians. They forgot, or at least neglected to emphasize, that cancer is a disease of mature life, and that the carnivora live to a ripe old age by cutting down the herbivora in their tender, non-cancerous youth. More abundant observation has shown that the herbivora also may become cancerous if they escape the maws of the carnivora and omnivora until late enough in life to entitle them to malignant disease. Another popular fallacy—that cancer was a disease of civilization and domestication from which wild animals did not suffer—has also been demolished. While wild animals with malignant tumors seldom come under the observation of persons competent to recognize the disease, enough cases have been described to show that free wild animals may develop cancer. Wild animals in captivity frequently show malignant tumors, a rhinoceros having recently succumbed in the Frankfort Zoological Gardens to a typical cancer of the uterus.[2]

It is the tumors in fish, however, which are just now of particular interest, because of recent observations on what have seemed to be epidemics of cancer of the thyroid arising in trout and salmon kept under rather artificial conditions in fish hatcheries. Pick and Plehn first made this condition generally known, describing epidemics in which as high as 7 per cent. of the fish developed thyroid growths. Similar epidemics have been studied in this country by Gaylord and by Marine and Lenhart. It is at once apparent that the occurrence of cancer as an epidemic in this way has an important bearing on the vital questions of the contagiousness and the possible parasitic origin of cancer, and it is desirable, therefore, to point out that the cancerous nature of these growths is by no means undisputed. Up to the present time this form of thyroid growth has been observed only in salmon and trout, apparently being peculiar to this variety of fish, just as the multiple epithelial growths of the skin are found only in the carp. The evidences of malignancy are furnished chiefly by the microscopic structure, which shows an invasion of tubules into muscle and bone adjacent to the thyroid, entirely comparable to the infiltration of tissues by cancer cells in human neoplasms; but metastases have not been found, and the behavior of the affected fish is not what one might expect in cancer.

The negative side of the question has been well presented by Marine and Lenhart,[3] who bring forward the following facts for consideration: The thyroid enlargement is found in fish kept under unfavorable conditions as to water-supply and crowding, and recovery occurs when the fish are given more freedom even in the same water, or when iodin is supplied in the water; the affected fish show nothing comparable to cancer cachexia, but are large, fat and sluggish, and probably in a condition analogous to cretinism; young fish are more affected than old fish. Furthermore, the microscopic evidence of malignancy, i. e., the invasion of muscle and bone, is not proof of the cancerous nature of the growth in fish as it would be in mammals, for the reason that in fish the thyroid is not normally enclosed within a capsule as it is in the higher animals, but consists of alveoli widely distributed in the areolar space about the ventral aorta. When the fish are kept under conditions which cause a proliferation of thyroid tissue similar to goiter in mammals, the new and enlarged alveoli cause pressure atrophy and replace surrounding structures until we have the picture which has been described as carcinoma of the thyroid. The non-malignant nature of the growth is shown by the fact that after such fish are placed in good water the hyperplasia may cease and a return to relatively normal thyroid tissue takes place. It is, of course, possible that in some cases the non-malignant goiter may become cancerous, just as it does in man, but the arguments of Marine and Lenhart that most of the supposed thyroid cancers of fish merely represent goiters seem well founded.

1. Schmey, Max: Ueber Neubildungen bei Fischen, Frankfurter Ztschr. f. Pathol., 1911, vi, 230.
2. Betke: Frankfurter Ztschr. f. Pathol., 1910, vi, 19.
3. Marine, David, and Lenhart, C. H.: Jour. Exp. Med., 1910, xii, 311.

IMPORTANT RECENT CONTRIBUTIONS TO OUR KNOWLEDGE OF POLIOMYELITIS

Landsteiner and Popper[1] first demonstrated experimentally the infectious nature of poliomyelitis. They showed that the disease could be produced in monkeys by inoculating them with an emulsion of the cord from a child who had died of poliomyelitis. This was soon confirmed by the work of Flexner and Lewis[2] who reported that, by using the intracerebral method of inoculation, they were able to transmit the disease to monkeys in series.

Since this pioneer experimental work, much has been added to our knowledge of the experimental disease by workers in this country and in Europe, reference to most of which has been previously made in these pages. Recently there have appeared in THE JOURNAL three papers by different workers which may almost be said to be the most important contributions to our knowledge of the disease since the early work above mentioned.

Osgood and Lucas[3] show that it is possible to produce typical poliomyelitis in monkeys by the inoculation of a filtrate of the nasopharyngeal mucosa of two monkeys dying without other discoverable infections six weeks, and five and a half months, respectively, after the acute stage of the disease. They were unable to transmit the disease by inoculation of the cord from the same monkeys. From this it follows that the virus of the disease may persist in an infective condition in the nasopharyngeal mucosa of monkeys several months after the acute manifestations of the disease have ceased, but that after the same period it is not demonstrable in the brain and cord.

These observations are of the highest importance and if similar results can be obtained with the nasopharyngeal mucosa from human cases it would seem that our present ideas as to the period of infectivity in recovered cases of the disease will have to be altered. These results may also explain some obscure facts in the epidemiology of the disease.

The most important feature of the paper by Drs. Flexner and Clark,[4] of the Rockefeller Institute for Medical Research, is in regard to the use of hexamethylenamin in the treatment of the disease. This drug has been used by clinicians in the treatment of poliomyelitis and has been thought by some to be of value. Theoretically, the drug should be of benefit, as it has been shown that after its administration *per os* formaldehyd can be detected in the spinal fluid. Flexner and Clark found that if the drug be given so that it be present in the spinal fluid of a monkey and its administration be continued by mouth, injection of the virus intracerebrally resulted, in some of the animals but not in all, first, in a prolongation of the period of incubation from six or eight days to twenty-four days; and, next, in the prevention of paralysis.

The authors emphasize the importance of these observations as showing that drug control of the virus in the body is a possibility, but that the successful results reported are in inhibiting infection, but not in restraining an already established infection with the virus. Flexner and Clark also report the demonstration of immunity principles in the serum of a suspected abortive case, and the confirmation of Osgood and Lucas' work as to the persistence of the virus in the nasopharyngeal mucosa of monkeys surviving the acute stage of the disease.

The paper by Anderson and Frost,[5] of the Hygienic Laboratory, which appears in this issue, deals only with the question of abortive cases. Since the publication of Wickman's[6] monograph on epidemic poliomyelitis, clinicians have come to believe that cases of the disease occur without subsequent paralysis. The clinical evidence on which such opinion is based is as follows: In outbreaks of the disease cases are encountered showing all gradations in the degree and extent of paralysis. In the same group may be found cases resulting in lasting paralysis; cases of transient paralysis, lasting only a few weeks; other cases in which there is no definite paralysis, but merely muscular weakness of short duration; and finally cases of illness with the symptoms of a general infection accompanied by symptoms indicative of meningeal, spinal or encephalic irritation, but without definite motor disturbances.

Taking advantage of the fact reported by several observers that the serum of persons who have recovered from an attack of poliomyelitis would neutralize the virus of the disease so that when injected into monkeys infection would not take place, Anderson and Frost studied the serum from nine suspected abortive cases of poliomyelitis without paralysis and found that the serum of six (66.7 per cent.) of the nine possessed the same germicidal action against the virus as the serum from a frank case of the disease with extensive paralysis. They thus established the correctness of the clinical diagnosis by confirmation with the biologic test. They also by the demonstration of neutralizing principles in the serum confirmed the clinical diagnosis of a type of poliomyelitis with spastic paralysis.

The importance of the results reported in these three papers can hardly be estimated, but their possible bearing on the epidemiology and control of the disease is obvious. The papers, however, bring out the following points very clearly:

1. The clinical diagnosis of abortive cases of poliomyelitis is a possibility and the fact that such cases have been definitely demonstrated may explain the apparent

1. Landsteiner, K., and Popper, E.: Zeitschr. d. Immunitätsforsch. Orig., 1909, ii, 377.
2. THE JOURNAL A. M. A., Nov. 13, 1909, p. 1639.
3. Osgood, R. B., and Lucas, W. P.: Transmission Experiments with the Virus of Poliomyelitis, THE JOURNAL A. M. A., Feb. 18, 1911, p. 495.
4. Flexner, S., and Clark, P. F.: Experimental Poliomyelitis in Monkeys, THE JOURNAL A. M. A., Feb. 25, 1911, p. 585.
5. Anderson, J. F., and Frost, W. H.: Abortive Cases of Poliomyelitis, THE JOURNAL A. M. A., March 4, 1911, p. 663.
6. Wickman, Ivar: Beiträge zur Kenntniss der Heine-Medinschen Krankheit, Berlin, 1907, S. Karger.

immunity of children in households where there are cases with frank paralysis.

2. It has been demonstrated that monkeys, after the acute stage of the disease has passed, are carriers of the infection in the nasopharyngeal mucosa; and the same thing is possible with human beings. If this is proved to be the case, efforts for the control of the disease must take into consideration such carriers. Cases of these two types add serious difficulties to the efforts for the control of poliomyelitis.

3. The results obtained in the use of hexamethylenamin in inhibiting, in a certain proportion of cases, the onset of paralysis suggests the possibility of the use of this drug in serious outbreaks of the disease as a prophylactic.

SUBACUTE INFECTIVE ENDOCARDITIS

Subacute infective endocarditis is a condition long recognizable by clinicians through certain signs and symptoms; the isolation of the infectious agent from the blood in order to clinch the diagnosis is, as yet, a method of examination too seldom used.

The disease is insidious in onset and may develop in any one of several ways. Thus, one patient may suffer from dyspnea, with or without precordial distress, general weakness, emaciation, vague pains, cough, or arthralgia; another may present a condition simulating subacute rheumatic fever and often indistinguishable from it; or a third may have fever, often unexplained by the physical examination.

Clinically, the manifestations of this type of endocardial disease may include: (1) signs of valvular disease, usually present, but occasionally lacking; (2) fever, often slight, at times high and intermittent, always irregular, with or without chills; (3) malaise, gastric disturbances, weakness and emaciation; (4) anemia, usually of marked grade, with a peculiar earthy pallor of the skin; (5) splenomegaly, ostealgia, and arthralgia, joint swellings and, as Libman has pointed out, tenderness over the gladiolus sterni.

Embolic aneurysms are common. Painful erythematous nodules—the *nodosités cutanées éphémères* of the French—are sometimes present. Petechiæ are common and hematuria is not a rare complication.

The disease is more often noted among private patients than in hospital wards. Its duration varies from two months to one and a half years and it is almost invariably fatal.

According to Horder,[1] infective endocarditis is preeminently a form of streptococcal disease "for streptococci occur in 66 per cent. of the cases." The organism isolated by him, however, was not the ordinary virulent *Streptococcus pyogenes,* but a form more nearly allied to the more saprophytic streptococci of the alimentary tract—*Streptococcus salivarius,* etc.

1. Horder: Quart. Jour. Med., 1909, ii, 289.

More recently, Rosenow,[2] and Libman and Celler[3] have studied the blood of patients with subacute infectious endocarditis and have isolated organisms the presence of which they consider of diagnostic import.

In thirty-six of the forty-three cases studied by Libman and Celler blood-cultures were made. In thirty-five of these they found atypical "endocarditis cocci" which were Gram-positive, round, ovoid or bacillary in form, occurring in clusters, in pairs or in chains, never encapsulated. These cocci are smaller than ordinary streptococci or pneumococci and grow more feebly. In the original cultures from the blood, growth was noted first after forty-eight hours, rarely as early as twenty-four hours, often not until after five or six days. On agar, a feeble translucent growth appears, adherent to the surface of the medium, a characteristic lost in subcultures. "On blood-agar plates a definite clear zone is sometimes, though rarely, seen, usually taking two to four days to develop. In transplantations this is lost. Colonies in the original plates are usually white in color, with or without a green or an opaque zone about them. In subsequent cultures on blood-plates three types of growth are seen. There may be a production of green pigment, there may be a moist white growth, or a dry, almost colorless, very slight growth." They are not dissolved by bile. About one-third of the strains ferment inulin. All strains precipitate or "whiten" serum-glucose agar.

The "endocarditis cocci" are not very pathogenic for mice, though peritonitis and endocarditis have been produced by them.

The attenuated nature of these atypical cocci—whether they be pneumococci, as Rosenow and Billings[4] regard them, or streptococci, as Libman and Celler and Schottmüller[5] class them—agrees with the course of the disease and may serve to explain several of its striking features, including: (*a*) the chronicity in many cases and the latency of the malady in others; (*b*) the slight grade or entire absence of leukocytosis often seen; (*c*) the afebrile periods which are common and the occasional absence of fever altogether; (*d*) the absence of suppuration in the infarcts; (*e*) the enormous numbers of the cocci that may be present in the blood-stream without causing grave symptoms.

These "endocarditis cocci" do not appear to be specific, though they have never been found in other conditions. The discovery of them gave rise to the hope of an antiserum or of a vaccine therapy, but so far treatment along such lines has been without favorable result. In fact, according to Rosenow, vaccine therapy may even prove harmful. Now that a more accurate knowledge of the disease has been reached, and the etiology cleared up, the dawn of a rational therapy would seem to be near.

2. Rosenow: Jour. Infect. Dis., 1909, vi, 224.
3. Libman and Celler: Am. Jour. Med. Sc., 1910, cxl, 516.
4. Billings, Frank: Arch. Int. Med., 1909, iv, 409.
5. Schottmüller, H.: München. med. Wchnschr., 1910, lvii, 617; abstr. in THE JOURNAL A. M. A., May 14, 1910, p. 1658.

THE TESTIMONIAL

It is reported that United States District Attorney Sims has obtained a ruling from the federal courts barring out testimonials as evidence in those cases in which the question of the curative properties of "patent medicines" are before the courts. It is gratifying to learn that the courts have at last taken a stand on this question. Week in and week out, for years past, THE JOURNAL has persistently and consistently maintained that testimonials from laymen regarding the curative value of medicine or medical appliances are intrinsically worthless and scientifically valueless. In taking this attitude, it has not been assumed that such testimonials are of necessity fraudulent in their origin. We believe that, at least during the last four or five years, a large proportion of testimonials published by "patent medicine" houses and quacks of various denominations have been genuine as documents; that is to say, a large proportion have been written in good faith by individuals who really believed, at the time they wrote these tributes, that they had received benefit from the drug or appliance whose praises they sang.

The reason for this condition of affairs is perfectly apparent to physicians, but not so evident to the public. Every physician knows that a large proportion of those who are sick, or who think they are sick, will recover whether they receive treatment or not. The average layman, however, has but little faith in the healing power of Nature, and persists in ascribing the "cure" to whatever artificial means he may have employed to bring about relief. In other words, few men without scientific training are able to discriminate between a mere relation of sequence in time and one of cause and effect. It is this very human weakness to give credit to human agencies for what rightly belongs to Nature, that is chiefly responsible for the testimonial—whether the testimonial be for a "patent medicine," for a worthless electrical device or for the various forms of "absent treatment."

No man in the United States has had a better opportunity of determining the worth, or worthlessness, of testimonials than has the assistant attorney-general to the postmaster-general, Judge R. P. Goodwin. On Judge Goodwin, for some years past, has devolved the onerous task of passing on the evidence submitted by post-office inspectors in the numberless cases of fraud perpetrated on the public by various promoters, especially by nostrum vendors and quacks. Judge Goodwin's reports have been very largely the basis on which the postmaster-general has issued the fraud orders in such cases. This is what Judge Goodwin says regarding testimonials:

> "Speaking generally, it may be said that in all my experience in this office never has a medical concern, no matter how fraudulent its methods or worthless its treatment, been unable to produce an almost unlimited number of these so-called testimonial letters."

It is rather surprising that testimonials have not been debarred as evidence long ago.

Current Comment

MORE DONATIONS FOR MEDICAL EDUCATION

It is pleasing to note that no one section of the country is receiving all of the gifts and appropriations for the improvement of medical education. From Oregon comes a report that the legislature has appropriated $30,000 for the department of medicine of the University of Oregon, to be used for the improvement of the college building, for laboratory equipment and for current expenses. In addition, the regents of the university have made an appropriation from the general funds of the university to pay the salaries of full-time professors in anatomy and physiology. From Tennessee comes a report that Vanderbilt University has just received a donation of $300,000, half of which came from the General Education Board as an addition to the endowment fund of the university; the remainder was a special donation from Mr. W. K. Vanderbilt for the purchase of the campus of Peabody Normal College, a sixteen-acre tract containing five or six buildings. These buildings are to be rearranged for the medical and dental departments of the university. The receipt of this money has made it possible for Vanderbilt University hereafter to assume full responsibility, financially and otherwise, for its medical department, and steps are now being taken to establish a university hospital. These developments in the extreme Northwest and in the South not only guarantee the continuance of medical education at the universities named, but also provide stronger and better-equipped medical colleges in sections of the country where, at the present time, their influence on educational standards will be particularly helpful.

NATIONAL TUBERCULOSIS DAY

The observance of National Tuberculosis Day in the churches all over the country on or about April 30 will be similar to that of Tuberculosis Sunday last year. This plan has been arranged by the National Association for the Study and Prevention of Tuberculosis. Instead of asking that the churches give the tuberculosis cause a special Sunday service, at which the subject of tuberculosis and its prevention can be discussed, it is requested that this service be held either on April 30 or on any day near that date. The idea is to have the subject discussed in all the churches at about the same time. The national association is attempting to arouse the churches to take further interest in the subject by soliciting their cooperation in the collection of statistics on tuberculosis. It has planned to distribute from the national office and from the headquarters of the 450 state or local antituberculosis associations millions of circulars. It is stated that the national association will, also, during the next three months, display on bill-boards throughout the country 20,000 educational posters. Free space on bill-boards in many parts of the country has been donated, as well as the printing of the posters. The posters show how fresh air,

good food and rest cure tuberculosis; how bad air, overwork and closed windows lead to tuberculosis; and how the careless consumptive menaces the health of his family by his careless habits.

REAL TALENT WASTED IN A NARROW FIELD

A country dairyman in Louisiana has given indications that he possesses talent of an order that seems to be in great demand among many modern business organizations. A law prohibiting the sale of watered milk threatened to interfere seriously with the vested rights, customs and emoluments of an ancient and honorable business. The canny dairyman at once surmounted the difficulty by a ruse that would delight the heart of a modern trust lawyer. "Surely they can't prevent me from selling people what they want," said he, and so when his attention was called to his little oversight in not complying with the law he answered that he sold pure milk to the customers who requested pure milk and charged them forty cents a gallon for it, but to those who preferred watered milk he sold a fluid (percentage of H_2O not stated) for which he charged twenty-five cents a gallon. Could anything be simpler? Was anyone cheated? Not according to the philosophy of our friend the dairyman who, like the Irish gentleman, probably thought, "What's the law, betune frinds, anyway?" The state board of health, however, will proceed with the prosecution.

PUCK ON ANIMAL EXPERIMENTS

Not all comic papers are silly, neither are all editors of such papers devoid of logic and common sense. After the unfair and ignorant diatribes of *Life* on animal experimentation, the cartoon in last week's issue of *Puck* is distinctly encouraging and refreshing. The artist has portrayed a venerable scientist standing by his laboratory table, on which is strapped a rabbit. The assistant, with ether cone in hand, is ready to administer the merciful anesthetic. On the one hand a crowd of sentimental antivivisectionists, well-fed, well-clothed and healthy, are crying "For Mercy's Sake, Stop!" On the other hand, a shadowy throng of sufferers, the maimed, the crippled, the sick and the dying are groaning "For Humanity's Sake, Go On!" The scientist, looking from one to the other, is evidently weighing in his mind the arguments for and against animal experimentation. *Puck's* cartoon, making an appeal to the reason and the intellect, is a distinct contrast to the frantic efforts of *Life*, which have appealed only to the ignorant, the emotional and the sentimental. In behalf of suffering humanity, we extend our thanks to *Puck*. May his shadow (and his circulation) never grow less.

Eyestrain and Neurasthenia.—The man or woman who leads a life of mental ease and muscular exercise, or the one who has a well-balanced nervous system, or a large reserve of vital energy, will probably withstand a nerve waste which in another individual leads to neurasthenic symptoms. It is possible that in the ages when the simple life was the rule, peripheral irritation and nerve waste, such as eyestrain produces, made little or no impression on the individual; but who can doubt its bad effect in this twentieth century of turmoil and worry?—E. Clarke in the *Practitioner*.

Medical News

ARKANSAS

Report of Sanatorium.—The new Arkansas Tuberculosis Sanatorium, Fayetteville, is practically full. The limit of the accommodation is seventy-four, after which patients can be received only when vacancies occur.

Elections.—At the annual meeting of the Sebastian County Medical Society, held in Fort Smith, Dr. John C. Amis was elected president; Dr. Samuel J. Ozment, vice-president; Dr. Clark S. Wood, secretary; Dr. Charles W. Garrison, treasurer, and Dr. St. Cloud Cooper, censor, all of Fort Smith.——Washington County Medical Society has elected the following officers: president, Dr. P. L. Hathcock, Lincoln; vice-president, Dr. Andrew J. Harrison, Spring Valley; secretary, Dr. Nina V Hardin, Fayetteville; treasurer, Dr. Andrew S. Gregg, Fayetteville; delegate to the state society, Dr. Thomas W. Blackburn, Canehill, and alternate, Dr. Edward F. Ellis, Fayetteville.——At the annual meeting of Greene County Medical Society, held in Paragould, January 5, the following officers were elected: president, Dr. Jones H Lamb, Beech Grove; vice-presidents, Drs. E. L. Kennedy Marmaduke; George T. Hopkins, Paragould; Felix M. Scott, Paragould; secretary-treasurer, Dr Olive A. C. Wilson, Paragould; censors, Drs. Henry N. Dickson, Paragould; W. R. Owens, Paragould, and R Edward Bradsher, Marmaduke; delegate to the state society, Dr. Thaddeus Cothren, Walcott, and alternates, Dr. George T. Hopkins, Paragould, and R. Edward Bradsher, Marmaduke.——Phillips County Medical Society, at its annual meeting in Helena, elected the following officers: president, Dr. Labrun Hall, Turner; vice-president, Dr. Albert A. Hornor, Helena; secretary-treasurer, Dr. M. Fink, Helena; censors, Dr. William C. King and James B. Ellis, Helena; delegate to the state society, Dr. J. W. Price, Marvell.

CALIFORNIA

Warrants Issued for Chinese Doctors.—Fourteen local Chinese practitioners of Los Angeles, charged with practicing medicine without a state license, were served with warrants, January 31. The charges were preferred by the special agent of the state medical society

Society Meeting.—At the annual meeting of Santa Barbara County Medical Society, held January 16, the following officers were elected: president, Dr. Benjamin Bakewell, Santa Barbara; vice-presidents, Drs. William B. Cunnane, Santa Barbara; C. C. Park, Santa Barbara, and William T. Lucas, Santa Maria; secretary-treasurer, Dr. Thomas A. Stoddard, Santa Barbara.

COLORADO

Hospital Completed.—The east wing of the Denver County Hospital has been completed at a cost of $103,496.

Open-Air Rooms for School Building.—An open-air room will be constructed for the use of children suffering from tuberculosis in all new school buildings of Denver, and in all additions to existing school buildings.

School for Defective Children.—The board of education of Denver has assigned one of the school buildings for the especial use of pupils, who, for any reason, are three grades behind children of corresponding age. A relatively large number of teachers, and those of special qualifications, will be assigned to this school, which will receive pupils from any part of the county.

Nominated for State Board.—Governor Shaffroth, at an executive session of the senate, submitted the names of Dr. Sherman Williams, Denver, and Jacob C. Chipman, Sterling, and Mr. E. F. Trunk, a druggist of Denver, as members of the State Board of Health.——It is announced that the legislative committee of the state medical society will go before the committees on apportionment of both the house and senate and file objections to the appointment of Mr. Trunk as a member of the board. He is said to be willing to retire from the board on his appointment as pure food commissioner.

DELAWARE

Resident Physician Cleared.—After the investigation into the alleged death of two patients of the Delaware Hospital from poisoning by the administration of bichlorid of mercury instead of calomel, it was found that there was no trace of poison in the stomachs of the deceased, and a verdict was rendered that the deaths were due to natural causes.

Personal.—Dr. Henry W. Briggs, Wilmington, has succeeded Dr. Joseph W. Bastian, resigned, as coroner's physician.——At

the annual meeting of the Physicians and Surgeons Hospital, Wilmington, January 10, Dr. Joseph P. Pyle was elected president; Dr. Josephine W. DeLacour, vice-president; Dr. Thomas H. Phillips, secretary, and Dr. Smith Cooper, treasurer.

Society Meeting.—At the annual meeting of the New Castle County Medical Society, held in Wilmington, the following officers were elected: president, Dr. Henry W. Briggs; vice-president, Dr. James A. Draper; secretary, Dr. Albert Robin; treasurer, Dr. William H. Kraemer, all of Wilmington, and delegates to the state medical society, Drs. Harold L. Springer, Wilmington; Francis L. Springer, Newport; Henry W. Briggs, William H. Kraemer, Frank Belville, Delaware City, and Henry J. Stubbs, Wilmington.

GEORGIA

State Sanatorium to Open.—It is announced that the State Tuberculosis Sanatorium, Alto, will be opened March 1. A sufficient number of applications have already been received to more than half fill the institution. Dr. Edson W. Glidden, formerly of Wallingford, Conn., is superintendent of the sanatorium.

New Medical Association Organized.—The Jefferson County Medical Association was organized at Louisville, February 7, with the aid of Dr. Wyman W. Pilcher, Warrenton, councilor of the state medical association. Dr. James W. Pilcher, Stellarville, was elected president; Dr. G. F. Carpenter, Wrens, secretary; Dr. Pierce Hubert, Louisville, delegate to the state association, and Dr. Joshua R. Beall, Blythe, delegate to the Tenth District Medical Association.

ILLINOIS

Personal.—Dr. Guy G. Dowdall, Chicago, has been appointed chief surgeon of the Illinois Central System, vice Dr. John E. Owens.——Dr. William H. Holmes, Springfield, state bacteriologist, has resigned to enter the service of the State Board of Administration as assistant physician at the Kankakee State Hospital.——Dr. Dallas B. Phemister, Chicago, has returned from Europe.

Meeting of Medical Historians.—The third meeting of the Society of Medical History of Chicago was held February 24, when Dr. Otho B. Will, Peoria, the guest of honor, delivered an address on "A Chapter on the Pioneer Period of Medicine in Illinois." Preceding the meeting there was an informal exhibition of autographic material, participated in by many members of the society.

For a Fifth, a Clinical, Year.—Senate Bill 235, introduced February 23 at the instance of the State Board of Health, provides that when a medical college has a five years' course, the fifth year clinical, its students may be admitted to examination at the end of the fourth year and, if they pass, may receive a limited license good for eighteen months, entitling them to practice in a hospital. On graduation, the student will receive a permanent license without further examination. The bill also aims to give the State Board of Health jurisdiction, in the matter of revocation of certificates, over all issued since 1877.

KANSAS

Elections.—At the biennial meeting of the Northwest Kansas Medical Society, held in Topeka, February 9, Dr. Mervin T. Sudler, Lawrence, was elected president; Dr. E. James Blair, Lawrence, vice-president; Dr. Louis V. Sams, Topeka, secretary-treasurer.——Leavenworth County Medical Society, at its annual meeting elected the following officers: Dr. Harley J. Stacey, president; Dr. Charles J. McGee, vice-president; Dr. Jacob L. Everhardy, secretary-treasurer, and Dr. J. Waldo Risdon, delegate to the state medical society, all of Leavenworth.——Harvey County Medical Society, at its annual meeting in Newton, elected Dr. Richard S. Haury, president; Dr. Max Miller, vice-president, and Dr. Frank L. Abbey, secretary-treasurer, all of Newton.

KENTUCKY

More Money for Hazelwood.—The subscription fund to provide quarters for more patients at the Association Sanatorium, Hazelwood, near Louisville, has been growing steadily, and now amounts to more than $10,000. The fund has already permitted the erection of one additional building.

District Nurses Work.—The district nurse work of the King's Daughters in their quarterly report shows 2,487 visits made to various Louisville families in the three months ended January 31. A new feature of the work recently inaugurated is the attendance of one of the district nurses on the session of the Juvenile Court on each Friday. During the past three months the children of this court have been given medical attention.

Tuberculous School Children.—Superintendent E. O. Holland of the Louisville public schools, is compiling statistics as to the number of school children suffering from tuberculosis and the number that are truant and subnormal, with a view of segregating them from other pupils. From reports he has already received from principals and teachers it is believed that such large numbers will be found in the public schools that several buildings will have to be provided for them. Twenty-five suspected cases of tuberculosis have been reported from two buildings alone. To overcome the crowding of some schools a number of grades have been assigned for afternoon study. He reports that forty of the fifty-six buildings of the city are not properly ventilated, and that in many of the buildings two pupils sit in a seat made for one. It is proposed to stimulate the mental activity of the abnormal pupils with the kind of manual training work that will most fit their individual needs. The method of dealing with the truant and semi-incorrigible pupils has not yet been determined, but it has been agreed by the Board of Education that something must be done to segregate them from other children.

LOUISIANA

Hookworm at State University.—Following the investigation made by Dr. A. S. J. Hyde, of the Hookworm Commission, it is announced that 25 per cent. of the students thus far examined at the state university are infected with hookworm.

New Hospital Opened.—The formal opening of the Presbyterian Hospital, New Orleans, occurred February 4. Addresses were made by the mayor, the president of the board of managers, the president of the parish medical society, and others. The free clinic of the hospital is located at 730 Baronne Street, and is open to the worthy poor, irrespective of religious denomination, not only by day but from 7 to 9 p. m.

Parish Society Meeting.—At the annual meeting of the Iberville Parish Medical Society, held in Plaquemine, January 31, the following officers were elected: president, Dr. Boote O. LeBlanc, Saint Gabriel; vice-president, Dr. G. A. Darcantel, Whitecastle; secretary-treasurer, Dr. Adrian A. Landry, Plaquemine; censors, Drs. Arthur A. Allain, Bayou Goula, and Rome Martinez; delegate to the state medical society, Dr. W. Glendower Owen, White Castle.

MARYLAND

Make Appropriation for Sewers.—The citizens of Easton have voted to spend $40,000 for sewerage and drainage system.

Personal.—Dr. Richard C. Massenburg, Towson, has entirely recovered from his recent illness.——Dr. Josephine A. Wright, assistant superintendent of the Eudowood Sanatorium for Consumptives, near Baltimore, has resigned and will practice in Towson.

Diphtheria in Johns Hopkins Hospital.—On account of an outbreak of diphtheria among patients, nurses and physicians in Johns Hopkins Hospital, where about 35 cases are reported, the public wards have been closed to students and the public, and the medical school has also been officially closed until further orders. Those affected have been isolated in the two wards where the first cases occurred.

Academic Day Exercises.—At the Academic Day Exercises of Johns Hopkins University, February 23, Hon. James Bryce, ambassador from Great Britain, the chief speaker, was given the degree of LL.D., and a portrait medallion of Dr. William H. Welch by Brenn of New York, and an oil painting of Dr. William H. Howell were exhibited and presented during the exercises. The Homewood Fund for the removal of the university to a new site in the suburbs now amounts to $1,200,000.

Banquet to Professor Howell.—Dr. William H. Howell of Johns Hopkins Medical School, was the guest of honor at a banquet, February 20, when a portrait of him by Cecilia Beaux, was presented to the university by Dr. Reid Hunt of Washington, and was accepted by the presiding officer, President Ira Remsen of the university. Dr. William H. Welch spoke of the valuable work done by Dr. Howell; Hon. John C. Rose, judge of the United States circuit court, spoke of him as a citizen; and Drs. Samuel J. Meltzer, New York City, and W. W. Willoughby on his work as a teacher. President Remsen stated that he had never done anything more important for the school than when he persuaded Dr. Howell, who had been offered an important position in another university, to remain with his alma mater.

Baltimore

Members of Advisory Council.—The following have been elected medical representatives of the Alumni Advisory Council of the University of Maryland: Drs. Charles E. Sadtler, Joseph W. Holland, Harry Adler, B. Merrill Hopkinson, Eugene F. Cordell, Nathan Winslow, Albert L. Wilkinson, J. Clement Clark, and James D. Iglehart.

Personal.—Dr. Henry M. Hurd has resigned the superintendency of Johns Hopkins Hospital, after having served twenty-two years. He will remain as secretary and advisor of the board of trustees. Dr. Winford H. Smith, general medical superintendent of Bellevue and Allied Hospitals, New York City, has been elected as Dr. Hurd's successor.——Dr. Summerfield B. Bond is ill in University Hospital with carcinoma of the liver and pancreas.——Dr. J. Hall Pleasants has been elected a member of the Alumni Council of Johns Hopkins University.

MASSACHUSETTS

Influenza in Worcester.—During January, it is stated that approximately 3,000 cases of epidemic influenza were reported in Worcester, with one death.

Personal.—Dr. Owen Copp, Boston, executive officer of the State Board of Insanity for twelve years, has resigned to assume charge of the Pennsylvania Hospital for the Insane, Philadelphia.——Dr. Alfred O. Hitchcock, chairman of the board of health, Fitchburg, has resigned and his duties have been temporarily assumed by Dr. Dwight S. Woodworth.——Dr. Paul Carson, port physician at Boston, has been placed in charge of the city health department's division of child hygiene and school medical inspection. Dr. William M. Gay, assistant port physician, is in temporary charge of the quarantine station.

Dental Dispensary for Children.—The Forsyth Dispensary for Children, incorporated last year by special act of the Massachusetts Legislature, is to be located at Hemenway Street near Huntington Ave., Boston, and will be one of the notable group of buildings which includes Harvard Medical School. The land, building, and a maintenance fund of $1,000,000 are the gift of John Hamilton and Thomas Alexander Forsyth in memory of their brothers, James Bennett and Thomas Henry Forsyth. The site on the Fenway consists of 51,000 square feet. The building is to be three stories and two partial mezzanine floors in height. The basement will be occupied by the general waiting room for children, janitor's rooms, boiler and engine rooms, etc.; the first floor will have a lecture room seating 250, which is intended to be used for popular lectures on dental hygiene; a room for visiting dentists, museum and research laboratory, and founders' room, and rooms for anesthesia and extracting, with male and female wards. The second floor will be used entirely for the infirmary, about which as a nucleus and subservient to the requirements of which the rest of the building is constructed. There will be in this infirmary accommodation for 108 operating chairs with waiting, *x*-ray and reserve rooms.

MINNESOTA

New Hospital.—Plans have been completed for the hospital building which Dr. George G. Eitel is to build at Fourteenth and Willow Street, Minneapolis. The building is to be five stories in height with high basement and is expected to cost $150,000.

Medical Society Meetings.—The Rice County Medical Association, at its annual meeting, held in Northfield, elected the following officers: president, Dr. Arthur C. Rogers, Faribault (reelected); vice-presidents, Drs. Warren Wilson, Northfield, and William H. Rumpf, Faribault; secretary-treasurer, Dr. Frederick U. Davis, Faribault; delegate to the state society, Dr. David M. Strang, Northfield; and alternate, Dr. Isaac F. Seeley, Northfield.——Waseca County Medical Society, at its annual meeting, elected the following officers: president, Dr. Alexander J. Rudolf, Waseca; vice-president, Dr. William M. Cory, Waterville; secretary-treasurer, Dr. Henry G. Blanchard, Waseca; censors, Drs. Frederick A. Swartwood, Waseca; W. A. Meiliche, Janesville; and Henry O. Hagen, New Richland; delegate to the state association, Dr. James F. Lynn, Waseca; and alternate, Dr. Edwin J. Batchelder, New Richmond.——At the annual meeting of the Upper Mississippi Valley Medical Association, held in Little Falls, Dr. Paul E. Kenyon, Wadena, was elected president; Dr. M. A. Desmond, Akely, vice-president; Dr. George H. Lowthian, Akely, secretary; Dr. William Reid, Deerwood, treasurer; Dr. Walter Courtney, Brainerd, censor; Dr. Frank H. Knickerbocker, Staples, delegate to the state association; and Dr. J. Burton Holst, Little Falls, alternate.

MISSOURI

Physicians Ignore Order.—Nine physicians of St. Joseph, who had failed to observe the ordinance requiring them to report cases of communicable diseases, have been cited to appear before the local board of health.

Bequest.—By the will of the late Dr. Ottoway T. Fields, a wealthy colored physician who died March 1, 1910, his medical library, surgical instruments and office appliances are bequeathed to Walden University, Nashville, Tenn., and $1,000 is devised to Provident Hospital, St. Louis.

St. Louis

Section Officers Elect.—At the meeting of the Oto-Laryngological Section of the St. Louis Medical Society, January 25, Dr. Albert F. Koetter was elected chairman; Dr. Max A. Goldstein, vice-chairman; Dr. Eugene T. Senseney, secretary-treasurer, and Dr. Frederick C. Simon, editor.

Social Hygiene Society Meeting.—At a meeting of the St. Louis Society of Sanitary and Moral Prophylaxis, held January 21, the following physicians were elected to office: president, Dr. George Homan; treasurer, Dr. Archer O'Reilly, and members of the executive committee, Drs. Francis L. Bishop, John Green, Jr., Carl J. Luyties, Walter H. Fuchs, Frederick K. Taussig and Bransford Lewis.

NEW YORK

New Society.—The Buffalo Society of Sanitary and Moral Prophylaxis has been organized, and the following officers have been elected: president, Dr. Lucien Howe; vice-president, George A. Lewis; secretary, Ada M. Gates; and treasurer, A. M. Cotton.

Judgment Against Milkmen.—The Supreme Court of Delhi is said to have rendered a judgment of $16,000 against Fishhandler and Abrams of New York for violating the pure milk law by shipping 836 cans of adulterated milk. This is one of the largest judgments ever secured for such a violation.

The Toll of Tuberculosis.—In connection with the tuberculosis exhibit at Ithaca, conducted by the New York State Department of Health and the State Charities' Association, Prof. Walter F. Wilcox, the Cornell statistician, placed the monetary loss to the State of New York from deaths by tuberculosis in 1910 at $64,000,000. He stated that one-ninth of the deaths in the state for last year were due to tuberculosis. Mr. Livingston Farrand, New York City, made a plea for more rural hospitals. Statistics gathered by the State Department for the last four years showed that the death-rate from tuberculosis is decreasing about three times as rapidly in the cities as in the rural districts.

Tuberculosis in Prisons.—Dr. Julius B. Ransom of Clinton prison, Dannemora, N. Y., in an address before the Society of Medical Jurisprudence at the New York Academy of Medicine, on Feb. 13, stated that from 40 to 60 per cent. of all deaths in the prisons of the world are due to tuberculosis and this percentage at times reaches 80 per cent. In this country more than one hundred thousand prisoners are annually discharged to the general community and more than 16 per cent. of these are infected with tuberculosis. Dr. Ransom gave statistics showing that of 46,129 prisoners in the Atlantic and middle west states only 125 are tuberculous, while of 4,624 in five southern states only 125 are tuberculous, and of the 8,540 in the western states only 118. This difference was due to the fact that in the South and West prisoners were put to work in the open air, whereas dust-raising industries in the eastern prisons were conducive to the increase of tuberculosis. Dr. Ransom urged the necessity for a systematic campaign for the treatment of the tuberculous inmates of prisons, jails and detention and charity institutions, advocating special institutions for treatment and the providing of outdoor work.

New York City

Hospitals for Measles.—A seven-story hospital, exclusively for the treatment of measles, with a capacity for 325 patients is to be built this summer at a cost of $275,000.

Bequests.—By the will of the late Mrs. Charlotte Garretson of New Hyde Park, L. I., Presbyterian Hospital is bequeathed $7,500 and the Flushing Hospital $10,000.——The will of Mrs. Caroline Lawrence leaves $20,000 to St. John's Hospital, Yonkers.

Milk Commission Asks Help.—The Medical Society of the County of New York has been appealed to by the Milk Commission to help the certified milk movement by recommending the use of certified milk in their practice. Accompanying the appeal is a description of the conditions under which certified milk is produced.

To Insane Hospital Instead of Penitentiary.—Dr. Ernest H. F. Pirkner, who conducted a so-called sanatorium in West Seventy-Ninth Street, and was recently indicted before the grand jury, tried and found guilty, and was about to have been sentenced to imprisonment in the penitentiary, became violently insane, and has been committed to the Morris Plains Hospital.

Personal.—Dr. Edward G. Janeway has been appointed head of the medical staff of the Presbyterian Hospital, vice Dr. W. Gilman Thompson.——Dr. Simon Flexner of the Rockefeller Institute for Medical Research will deliver the Harben Lectures of the Royal Institute of Public Health of London for 1912.——Dr. Fred J. Leviseur has been appointed consulting dermatologist to the Montefiore Home.

Lectures at Skin and Cancer Hospital.—The governors of the New York Skin and Cancer Hospital announce a course of lectures in the out-patient hall of the hospital every Wednesday afternoon, beginning on March 1 at 4:15 o'clock and continuing until April 26. Dr. L. Duncan Bulkley will deliver the first seven of these lectures and Dr. W. Seaman Bainbridge the last two. The subjects will be eczema, acne, psoriasis, syphilis and cancer.

City Provides Milk Stations.—The Sinking Fund Commission has provided for the distribution of pasteurized milk by the city at cost for the use of infants of poor families. Premises will be rented for the establishment of seven stations in Brooklyn, four in Manhattan and one in the Bronx. The city will employ six medical inspectors, ten nurses and fifteen assistants. The budget contains an item of $40,000 to defray the cost of this work.

The Practice of Midwifery.—At the meeting of the Section on Obstetrics and Gynecology of the New York Academy of Medicine, February 23, Dr. J. Clifton Edgar presented a preamble and resolution, which were unanimously adopted, setting forth that, as 50 per cent. of the births in the large cities of this country are attended by midwives; as the profession of midwifery in the United States is followed by ignorant, untrained and incompetent women; as some of the results of this practice are unnecessary blindness, mental and physical degeneracy and deaths of infants, and unnecessary suffering, invalidism and deaths of mothers; and, as although both physicians and nurses are given instructions in the training and care of childbearing women and new-born infants, provisions are made for the adequate training of midwives, the Section recommends that measures be taken in New York to secure new legislation which shall provide for the training, registration, licensure, supervision, regulation and control of women engaged in the practice of midwifery.

OREGON

Society Meetings.—Physicians of the county met recently at Wallowa Hospital, Wallowa, and organized the Wallowa County Medical Association, and elected the following officers: president, Dr. James H. Thompson, Joseph; vice-president, Dr. Clyde T. Hockett, Enterprise, and secretary-treasurer, Dr. Ralph M. Erwin, Joseph.——At a meeting of the Polk and Yamhill County Medical Association, held in McMinnville, Dr. Asa B. Starbuck was elected president, and Dr. Lenthal A. Bollman, secretary-treasurer, both of Dallas.

Medical College Gets Appropriation.—It is reported that the Oregon legislature has made a special appropriation of $30,000 for the Department of Medicine of the University of Oregon, to be expended for the improvement of the college building, laboratory equipment and current expenses. The regents of the university have made an additional appropriation from the general fund to cover the salaries of two full-time professors. These are Dr. David M. Roberg, who has been secured for the chair of anatomy, and Dr. John McLaren for the chair of physiology.

Personal.—Dr. Fred W. Vincent, Pendleton, who has been confined to the house on account of a fractured rib, is convalescent.——Drs. Eldred B. and Clara Waffle, Portland, started for Europe, January 17.——The office of superintendent of the Eastern Oregon Insane Asylum, which will not be ready to receive patients for a year and a half, and of which the incumbent was Dr. James D. Plamondon, Athena, has been declared vacant.——Dr. Herbert S. Nichols, Portland, has been appointed a member of the Oregon State Medical Board, vice the late Dr. Osmond Royal.——Following a hearing conducted by the Oregon State Board of Medical Examiners, Dr. William T. Eisen, Portland, charged with having procured an unlawful operation which resulted in the death of Mrs. Anna Foleen, the license of Dr. Eisen to practice medicine is said to have been revoked.

PENNSYLVANIA

Personal.—Dr. John B. Chapin, for many years chief of the Insane Department of the Pennsylvania Hospital, Philadelphia, has retired from active duty.

Gift to Tuberculosis League.—Henry Phipps, the first contributor to the Tuberculosis League of Pittsburg, has donated $25,000 to the league on the condition that $150,000 be raised by the members; $118,000 of this amount has already been secured, leaving a balance of only $32,000 to complete the amount.

Election.—At the meeting of the Pottsville Medical Society, February 9, the following officers were elected and installed: president, Dr. George R. S. Corson; vice-presidents, Drs. Merchant C. Householder and Thomas W. Swalm; secretary-treasurer, Dr. John J. Moore, and directors, Drs. George H. Boone, Patrick H. O'Hara and Joseph G. Kramer.

Philadelphia

Morgan Memorial Committee.—The proposed Dr. John Morgan Memorial at the University of Pennsylvania is in charge of Provost Edgar F. Smith, and Drs. S. Weir Mitchell, William Pepper, Jr., Clarence P. Franklin and Swithin Chandler, chairman.

Babies' Club Formed.—For the instruction of mothers in the care of infants and as a further prevention of infant mortality, the Public Health Committee of the Civic Club, has started a "Babies' Club" which meets weekly at the Southwark Neighborhood House. The lectures are really practical demonstrations by the nurse in charge and there is a room fitted up with everything necessary, weighing scales, bath tub and simple remedies.

Meeting Hall Referendum.—As a result of the recent postal referendum on the future place of meeting for the Philadelphia County Medical Society, it has been announced that there were 408 votes in favor of continuing the meetings at the College of Physicians and 197 favoring removal to a more centrally located hall. At the business meeting of the society held on January 18, it was finally settled in favor of the College of Physicians.

Fined in Measles Case.—Accused of having violated the health laws of the state, John L. Worshing, purchasing agent for the Huntingdon and Broad Top Railroad Co., is said to have pleaded guilty, February 2, and to have been fined $20 and costs. The charge against Mr. Worshing was that of removing his son, who was suffering with measles, from the Presbyterian Hospital to his home in Huntingdon before the period of incubation had passed, thereby exposing other passengers to contagion.

Hospital Inquiry Urged.—At the meeting of the Philadelphia County Medical Society on January 18, a resolution was adopted to investigate appropriations to hospitals not under state control. The resolution urges the governor to appoint a joint committee, consisting of three members of the senate, three members of the house, a member of the state board of charities, two licensed physicians, who are not connected with any institution receiving state aid, and a member of the bar, who has served as a manager of a hospital.

Personal.—Dr. George W. Mercher, chief resident physician of the Germantown Hospital is recovering from an operation for appendicitis.——Provost Edgar F. Smith, of the University of Pennsylvania, has been appointed a member of the college and university council in place of C. C. Harrison, resigned.——Dr. Adolph Feldstein, the first resident physician of the Jewish Hospital and for nearly fifty years one of the physicians to the institution, celebrated his seventieth birthday anniversary.——Drs. E. A. McLain and J. E. Murphy have been appointed physicians to the Insane Department of the Philadelphia General Hospital.

Popular Lectures on Tuberculosis.—The popular course of lectures at Logan Hall, University of Pennsylvania campus in charge of a committee of the faculty consisting of Dr. Charles K. Mills, chairman; Dr. Allen J. Smith, dean of the Medical School, and Dr. A. N. Richards, have been most successful. The lecture February 3, was "Tuberculosis from the Sociological Point of View" and one of its main points was that society must remove the ignorant and evil conditions which foster tuberculosis and that the campaign against it is one of education.

Annual Elections.—The following officers were elected for the year 1911 at the recent meeting of the Academy of Medicine: president, Dr. Robert G. LeConte; vice-presidents, Drs. Gwilym G. Davis and John H. Gibbon; treasurer, Dr. Edward B. Hodge; secretary, Dr. Charles F. Mitchell; recorder, Dr.

John H. Jopson, and councilors, Drs. Francis T. Stewart, Thomas R. Neilson and J. Chalmers DaCosta.——The following officers were elected by the Northeast Branch of the County Medical Society: Dr. J. Albert Bolin, chairman; Dr. Albert C. Buckley, clerk, and Dr. Frank Embery, associate vice-president.

SOUTH DAKOTA

Gift to Medical Library.—Dr. Frederick A. Spafford, Flandreau, and Dr. William E. Moore, Tyndall, have each presented to the library of the College of Medicine of the University of South Dakota more than one hundred volumes of medical books, journals and periodicals.

Election.—At the annual meeting of the Eighth District Medical Association, held in Yankton, Dr. Herman J. G. Koos, Scotland, was elected president; Dr. Nelgaard, Volin, vice-president; James Roane, Yankton, secretary-treasurer; and Dr. Silas M. Hohf, Yankton, delegate to the state society.——Watertown District Medical Society, at its annual meeting, elected Dr. Charles S. O'Toole, Vienna, president; Dr. Harry M. Freeburg, Watertown, vice-president; Dr. James B. Vaughn, Castlewood, secretary-treasurer; and Dr. William O. Leach, Carthage, censor.——The Fourth District Medical Society, at its annual meeting in Pierre, elected Dr. Charles M. Hollister, Pierre, president; Dr. Napoleon B. Gerhart, Pierre, vice-president; and Dr. Joseph M. Walsh, Fort Pierre, secretary-treasurer.——At the organization of Gregory County Medical Society, at Dallas, recently, Dr. Harry A. Murnan, Gregory, was elected president; Dr. Edwin B. Bradley, Burke, vice-president; and Dr. Thomas R. Castles, Dallas, secretary-treasurer.

TENNESSEE

Medical College Suspended.—It is reported that the Knoxville Medical College, colored, has been temporarily suspended. There was only one graduate in 1910.

Society Elections.—The Montgomery County Medical Society, at a meeting in Clarksville, February 10, elected the following officers: president, Dr. Frank J. Runyon; vice-president, Dr. George E. Vaughn, both of Clarksville, and secretary, Dr. Lucullus E. Webb, St. Bethlehem.——McNairy County Medical Society, at its annual meeting in Selmer, elected Dr. E. Garry Sanders, Stantonville, president; Dr. James L. Smith, Selmer, vice-president, and Dr. Benjamin C. Dodds, Gravelville, secretary-treasurer.

Improvements at Medical School.—Vanderbilt University has received a donation of $150,000 from the General Education Board as an addition to its general endowment and a like sum from Mr. W. K. Vanderbilt to be used for the medical department. These contributions have made possible the purchase of the campus of the Peabody Normal College which contains 16 acres of ground. On this campus are five or six buildings which are to be used for the medical and dental departments of the university. It is planned also to establish at once a university hospital of at least one hundred beds.

TEXAS

Recommends New Laboratory.—As the result of the inspection of the State Medical College, Galveston, by the subcommittee of the senate, a strong recommendation is made for the construction of a separate chemical laboratory as a necessary addition to the equipment of the institution.

Medical Society Meeting.—DeWitt County Medical Association held its annual meeting in Cuero, February 7, and elected Dr. George W. Allen, Yorktown, president; Dr. William D. Finney, Cuero, vice-president; Dr. Bronislaw J. Nowierski, Yorktown, secretary-treasurer; Dr. Robert Westphal, Yorktown, censor; Dr. W. R. Gillett, Cuero, delegate to the state medical association, and Dr. Harry H. Brown, Yoakum, alternate.

Cities to be Admitted to Census Bureau.—Although Texas as a state is not included in the death registration area of the United States, formed for the compilation and study of mortality statistics by the bureau, there are two cities, Galveston and San Antonio, which because of the effective local death registration ordinances, have been considered in the area of the bureau for the last four years. Owing to the activity of Dr. William M. Brumby, late state health officer, in promoting the extension of the registration area, many requests have been received from Texas cities which desire admission to the area and the chief statistician believes it probable that a number of them, in which the ordinances are thoroughly enforced, will be admitted to the area for the current year.

WISCONSIN

Society Meetings.—At the annual meeting of Brown County Medical Society, held in Depere, Dr. Richard C. Buchanan, Green Bay, was elected president; Dr. Felix Moraux, Luxembourg, vice-president; Dr. Thomas J. Oliver, Green Bay, secretary-treasurer; and Dr. Daniel H. Gregory, Depere, censor.——Langlade County Medical Society, at its annual meeting in Antigo, January 28, elected the following officers: president, Dr. Michael J. Donohue (reelected); vice-president, Dr. George H. Williamson; secretary-treasurer and delegate to the state medical society, Dr. John C. Wright, and censor, Dr. Ignatius D. Steffen, all of Antigo.——At the twenty-fourth annual meeting of the Fox River Valley Medical Association, held in Menominee, Mich., February 7, Dr. Henry W. Abraham, Appleton, Wis., was elected president; Drs. Benjamin T. Phillips, Menominee, Mich., and F. Gregory Connell, Oshkosh, vice-presidents; and Dr. W. Weber Kelly, Green Bay, Wis., secretary-treasurer (reelected).

Proposed Legislation.—Dr. Cornelius A. Harper, Madison, secretary of the State Board of Health and a member of the legislature, has set a good example to other legislators. He has declined to do professional work during the 100 days' session of the legislature. He is about to introduce a bill providing for a state sanitary inspector whose duty it will be to travel through the state inspecting hotels, jails, school buildings, public buildings of all kinds, streets, alleys and other places to see if they are kept in sanitary condition. The bill carries an appropriation of $3,500, one-half for salary, and one-half for expenses of the office. The second bill requires counties to make adequate provision for the care of advanced cases of tuberculosis. The state at present cares for incipient cases, but the State Board of Health wishes counties to take care of their own advanced cases. The third reform is the prohibition of the common drinking cup in all public buildings throughout the state.

GENERAL AND FOREIGN NEWS

Probably Not Plague in Spokane.—The daily press of February 28, reported that Passed Assistant Surgeon Bolivar J. Lloyd, U. S. P. H. and M.-H. Service, specially detailed for this service, has decided that the deaths in Spokane, supposed to have been due to bubonic plague, were not due to that disease but rather to a complication of influenza and pneumonia.

Cholera in Hawaii.—The Chion quarantine office, Honolulu, reported on February 25, four fatal cases of cholera among Hawaiians. Two of these were in the Kewalo suburb of the city, and two at a point nearly a mile distant in the city proper. On the following day two additional cases were reported, with one death. All necessary precautions are being taken by the Board of Health of Honolulu.

Conference on Education and Legislation.—As the Journal goes to press, the seventh annual conference of the American Medical Association on Medical Education and Medical Legislation is holding its opening session. The program was given in THE JOURNAL recently. An account will appear in these columns later and the full report will be published in the *Bulletin of the American Medical Association.*

Meeting of the Association of Colleges.—At the meeting of the Association of American Medical Colleges in Chicago, February 27 and 28, a number of amendments to the constitution were adopted, the principal one being in regard to the new curriculum for medical colleges and the raising of the entrance requirements to an unconditioned high-school certificate. Another amendment was the placing of the administration of the entrance requirements into the hands of proper educational authorities. The following officers were elected: president, Dr. William P. Harlow, University of Colorado, Boulder; vice-presidents, Drs. Henry A. Christian, Harvard Medical School, Boston, and Charles M. Hazen, Medical College of Virginia, Richmond; secretary-treasurer, Dr. Fred C. Zapffe, Chicago (reelected), and judiciary council, Drs. William J. Means, Columbus, O.; Randolph Winslow, Baltimore; Clarence M. Jackson, Columbia, Mo.; Charles R. Bardeen, Madison, Wis.; Egbert LeFevre, New York City; James R. Guthrie, Dubuque, Ia., and John A. Witherspoon, Nashville, Tenn. The next annual meeting will be held in Chicago.

Bureau for Distributing Bacterial Cultures.—The Department of Public Health at the American Museum of Natural History has equipped a laboratory to serve as a central bureau for the preservation and distribution of bacterial cultures of both pathologic and non-pathologic organisms. It is hoped that the laboratories of medical schools, colleges, boards of health, agriculture experiment stations, and individuals engaged in bio-

chemic work will furnish the museum with cultures in their possession. Types of new species and varieties are particularly desired at present. The laboratory plans also to keep on file descriptions of bacterial species in print or arranged in the form of standard card, and will be grateful for copies of any such descriptions. Descriptions filed in the department will be carefully preserved and living cultures will be supplied at all times without charge to corresponding laboratories, and so far as possible, and with a reasonable charge, to schools and other institutions which may desire cultures. Pathogenic forms will be sent only to properly qualified persons. The headquarters of the department are at Seventy-Seventh Street and Central Park West, New York City.

Sanitary Association Meeting.—At the fourth annual meeting of the Lake Michigan Sanitary Association, held in Chicago, February 18, addresses were made by R. R. McCormick, formerly president of the sanitary district, in which he stated that the power to protect the waterways from pollution rests with the federal government; and that if the people of the states of Wisconsin, Illinois, Indiana and Michigan do not take proper action the government will forbid all communities to empty refuse into Lake Michigan or adjacent waterways. Surgeon George B. Young of the U. S. Public Health and Marine-Hospital Service, discussed legislation now pending in congress relative to sanitation; Dr. Mazyck P. Ravenel, of the University of Wisconsin, spoke on "The Water of Racine, Kenosha, and Milwaukee;" Frank A. Windes discussed the progress in the improvement of north shore sanitary conditions; Langdon Pearse, of the sanitary district, spoke on "Sewage Disposal"; J. Herbert Brewster, of the Indiana State Board of Health, made a report on the condition of the Calumet River from Gary to its mouth; and Health Commissioner, Dr. William A. Evans, Chicago, discussed sanitary conditions.

Good Sanitary Conditions in Havana.—The *Revista de Med. y Cirugia* of Havana publishes an open letter from Dr. J. Guiteras, chief of the public health service of the island, protesting against certain statements that appeared in the *Boston Transcript* and were copied in the *Army and Navy Journal*, Oct. 10, 1910, to the effect that Cuba was dropping back into her old apathy in respect to sanitary matters. He deplores the fact that every year at the opening of the tourist season some paper in the United States makes some such statement and that it is copied from one to the other until it seems important enough to be reproduced by some standard periodical which does not take the trouble to verify its accuracy. On the contrary, Guiteras states in 1909 there were only forty-five deaths from typhoid at Havana, with a population of 300,000, and thirty-eight in the first eleven months of 1910; there has been no mortality from yellow fever for years; from tuberculosis it has been only 13.07 per 10,000 inhabitants, and the infant mortality has constantly declined, dropping from 196 in 1900 to 171 for each 1,000 births, while in the entire island it is only 116. The deaths from malaria have dropped from 19 in 1908 to 6 in 1909, and the general mortality of the island now is only 13 per 1,000. The republic goes to great expense throughout the island to keep up the mosquito campaign, but in 3,056,118 houses examined only 6,238 actual breeding-places were discovered.

Proposed Organization of the Profession in Cuba.—The Cuban Academia de Ciencias Medicas, Fisicas y Naturales, located at Havana, recently sent out an appeal signed by its president, Professor J. Santos Fernandez, to all the medical men of the island inviting them to a national gathering to discuss ways and means for organizing the profession to protect its material and other interests. At the meeting resolutions were adopted to have a petition drawn up to be presented to the national legislature asking for compulsory organization of the registered physicians of the country, regulation of the illegal practice of medicine, establishment of a minimum salary for medical state officials, with an increase of 10 per cent. for each five years of service, correction of hospital abuse by those able to pay, contract practice restricted to 500 policy-holders to one medical officer, etc. In the discussion of the subject one speaker cited the universal dissatisfaction with conditions in regard to contract practice in France, England, Germany and Spain, where the medical men have finally had to organize to protect themselves against further exploitation by outside interests. In Belgium, he added, the physicians have triumphed over these evil conditions, thanks to the union of their common interests in concerted action. The idea of organization in Cuba being made compulsory is combated by other physicians, the opposition being so wide-spread that it will probably cause the whole matter of organization of the profession in Cuba to be tabled for the present, although the leaven of the need for organization is surely working.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Jan. 14, 1911.

Health and Sanitation in Indo-China

During a Christmas vacation just ended, I made a trip to Indo-China and while there visited some of the hospitals and inquired into the general health of the country and the sanitary measures in vogue. Indo-China is a French possession and the stronghold of the French in the far East. It is located south of the Canton district of the Chinese Empire and east of Siam and the Malay peninsula. The country has been under the control of France for about sixty years. During this time many improvements have been made and the country has many of the landmarks of western civilization. The roads are excellent and most of even the smaller towns are supplied with the best available water and possess underground sewage systems. Many of the latter improvements, however, are doubtless for the convenience and health of the government functionaries, most of whom are French. One quickly gathers the impression that the native gets far less consideration in Indo-China than in the Philippines. House servants get from $4 to $8 (Mex.) (about $1.80 to $3.60 U. S. standard) per month and the great mass of the rice-field laborers who make up by far the majority of the population are still permitted to live in the dingy little nipa shacks which usually are found in groups in a filthy swamp. In many respects Indo-China resembles the Philippines, both in climate and in topography.

The principal diseases of the former are said to be dysentery, skin diseases and malaria. Dysentery is quite prevalent and is often very severe on the European. It is asserted that bacillary dysentery is not found in the country, but the quickness with which people sometimes die with dysentery there would tend to make one a little skeptical. Cases often terminate fatally in one to four days. A source of a great deal of the dysentery, especially among the Europeans, is from fresh vegetables, both those from the local market and those imported from China. In either case they are grown by Chinese, and the Chinaman's system of gardening is not a particularly sanitary one. Human and animal excreta are collected in a cesspool or well and the whole mass of excreta and water is churned up into a fine emulsion. Each evening the truck garden is sprinkled from this pool. Thus fertilization and irrigation are accomplished at the same time and the vegetables thrive. This kind of vegetable naturally has a tendency to produce more fertilizer and the "heathen Chinee" profits additionally. As might be expected when vegetables of this kind are not well sterilized, there results serious infection with various mieroorganisms. This is probably the source of most of the dysentery among Europeans in Indo-China.

In the tropics, green vegetables, lettuce, tomatoes, etc., are especially palatable and one is tempted to eat them even when one has no assurance that they have been properly prepared.

Liver abscesses are quite common among the soldiers of Indo-China. At the hospital in Saigon there are several cases (four to ten) for operation each week. The Public Health Reports show a few cases of bubonic plague and cholera each week, but they seldom become epidemic. Yaws is said to be practically unknown in Indo-China, and leprosy occurs less frequently there than in the Philippine Islands. In regard to the occurrence of yellow fever, I was told that it was believed not to exist or at least is of very rare occurrence in recent years, but that when the French were attempting to dig the Panama Canal, it was always a source of anxiety and that cases appeared from time to time.

Major E. R. Whitmore, who has made a more extended tour of French Indo-China and a more complete inquiry into the medical problems of that country, has reported his observations to the Manila Medical Society for comparison with those of the Philippines. Among his notes are the following:

"The director of health is an army medical officer as well as the subdirectors. The army medical officers also furnish the quarantine service, such as boarding ships, etc., and do most of the teaching in the Medical School of French Indo-China at Hanoi. The manufacture of opium is a government monopoly and apparently there is no great restriction on the sale of the drug.

"The military hospitals are large permanent structures of brick, concrete and steel. In connection with the military hospitals at Hanoi is the Antirabic and Bacteriologic Institute of Hanoi. Drs. Mathis and Leger (majors of the colonial service) have done a great deal of work and have published freely on the diseases in Tonkin due to animal parasites. They have worked on the diseases around Hanoi and have

charted the various diseases in that part of Tonkin down to Haiphong and for some distance north and south on the coast.

"They have found that infection with *Filaria nocturna* is very frequent among the natives in north Indo-China and especially in Hanoi and Haiphong.

"Relapsing fever has been epidemic in Tonkin during the years 1907, 1908, 1909. It is especially prevalent in the delta of the Red River around Haiphong.

"Malaria is prevalent in Tonkin and the endemic index has been worked out to some extent. The endemic index (2 per cent. of apparently healthy children from 1 month to 5 years old found infected) runs according to the locality from 2.98 to 40.00 with an average of 7.33. It is interesting to note that their findings show that a large per cent. of the infections in children under 1 year are tertians, while quartans and subtertians are not nearly so numerous. But as the age of the child increases the proportions of quartan and subtertian infections increase as the tertians fall. However, they point out that their figures are still too small to base any conclusions on them.

"In connection with their work on malaria they have worked on the mosquitoes in Tonkin; six species of anophelines have been found in Tonkin, three in Hanoi.

"Infection with the Chinese liver-fluke is very common among the natives in north Indo-China and increases with age. Varying with the place, from a quarter to a half of the natives are infected with this fluke.

"They have studied the intestinal parasites of man in Tonkin and find infection about as common and with the same parasites as in the Philippines. Of a thousand natives examined, every one had at least one intestinal parasite, and the 1,000 had 2,289 infections.

"Intestinal amebiasis is very prevalent among the Europeans in French Indo-China. In the wards of the Military Hospital in Saigon they average about forty cases of it, and about eighty cases pass through the hospital every month.

"I saw three cases of sprue in Saigon and was informed that it was not very uncommon there, while the doctors in Hanoi told me that they do not have any sprue in Hanoi.

"Rabies is wide-spread among the animals, especially dogs, and the two institutes in Saigon and Hanoi have constantly from seven to thirty persons undergoing protective inoculations. Beside the rabies work, the Pasteur Institute at Saigon prepares vaccine virus and undertakes the study of material from infectious diseases, as plague, cholera, typhoid; of which diseases there are usually a few cases.

"At Nha Trang the anti-rinderpest serum is prepared, but all other serums (antidiphtheritic, etc.) are sent out from Paris.

"I was especially struck by the difference in the animal parasites found in the natives in Indo-China and what has been found in the Philippines. This is all the more striking when we remember that in Tonkin (in about the same latitude as Luzon), relapsing fever is epidemic, and infection with the liver-fluke is very prevalent. Relapsing fever has not been found in the Philippines, except an occasional imported case, and the liver-fluke is found only in Chinese who have probably brought it in with them.

"Similar conditions seem to hold good for parasites of lower animals, though this has not been worked on as much here as there, and save for the trypanosomes of rats and bats (which seem to be infected everywhere) little is known of the parasites of the lower animals in the Philippines.

"A hematozoon is found rather commonly in monkeys there, while D. Teague has examined a large number of monkeys here without finding a hematozoon and I think no one has ever found a hematozoon in monkeys here.

"I have examined the blood of doves, snipe and ducks without finding a leukocytozoon, while doves are commonly infected with a leukocytozoon there.

"But possibly when more work has been done on the animal parasites of man and the lower animals in the Philippines, we shall find that French Indo-China has not so many more animal parasites than we have."

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Feb. 14, 1911.

The Lowest Birth-Rate and Death-Rate on Record

The continuous fall of the birth-rate in recent years is once more shown by the lowest birth-rate on record. The figures for 1910 have just been issued; the births numbered 897,100 and the deaths 485,321, the natural increase of population thus being 413,779. The average annual increase in the past five years was 404,656. The birth-rate was at the rate 24.8 per 1,000 of the population, which is 0.8 below the rate of 1909, and lower than any rate on record. Compared with the average of the decade 1900-1909 the birth-rate in 1910 showed a decrease of 2.7. The death-rate in 1910 was 13.4 per 1,000, which was 1.1 below the rate of 1909 and, again, the lowest record. Compared with the average of the decade 1900-1909, the rate in 1910 showed a decrease of 2.4. The deaths included 10,609 from diarrhea, 8,574 from whooping-cough, 8,172 from measles, 4,177 from diphtheria, 2,337 from scarlet fever, 1,848 from typhoid, and 19 from small-pox. Thus 35,736 deaths were due to these epidemic diseases, a rate of 0.99 per 1,000, against 1.28, 1.34 and 1.13 in the three previous years. The deaths of infants under one year of age was 106 per 1,000 births, which is three below the rate of 1909 and the lowest on record.

The Value of Heredity

At the Authors' Club Dr. G. Archdall Reid, the author of "The Principles and Laws of Heredity," opened a discussion on this subject. He said in part: Everyone believes in evolution, which implies adaptation to the environment; degeneration implies the contrary. All plants and animals are adaptional forms. Man and the beetle can live in their own environment but not in that of each other. The right theory of evolution, and the right theory of heredity must fit in with this fact of adaptation. Only one theory of heredity fits the facts—Darwin's theory of natural selection. Selection implies a selective mortality, that the fittest survive and the unfittest perish as a general rule. Many people die young because they are weak against various microbic diseases. Each disease weeds out in its own habitat the unfittest. One other source of elimination is alcohol to which people vary in susceptibility. If the ill conditions which affect the parent do not as a general rule tend to alter offspring then since the offspring does vary spontaneously the fit will be preserved and the unfit will be weeded out and the race undergo protective evolution. A very unhealthy condition is found in the slums of great cities which show unhealthy parents and puny children. Since the fit will survive the race will become more resistant to slums. The races most exposed to slum life are Jews and Chinese. These races have not grown degenerate but have undergone protective evolution. The races longest exposed to consumption are most resistant to it. Offspring is not rendered degenerate by the misfortune of the parents but races undergo evolution owing to the fire to which they have been exposed. Suffering does not affect a race; but the deaths of the race do. By means of these deaths the foundations of the empire are laid. Disease has created a void which the British have filled in Australia and New Zealand.

Typhoid and Water Storage

Dr. A. C. Houston, bacteriologist to the Metropolitan Water Board, has issued an important report on the vitality of typhoid bacilli in stored water, and with that of cultivated as opposed to uncultivated bacilli. Bacilli derived from a typhoid carrier and bacilli cultivated in the laboratory are added in similar proportions to samples of river water in a carefully conducted and protected series of experiments. Both varieties proved to be incapable of sustaining an independent existence during storage and perished within definite limitations of time, Dr. Houston concludes that even a week's storage of raw river water is an enormous protection and less than a month's storage an absolute protection against typhoid, and that it is in the power of the board by adequate storage to render the supplies drawn from rivers, however originally polluted, perfectly safe before filtration.

The Overcrowded Medical Curriculum

The progress of medical science renders increasingly difficult the teaching of the medical student all the subjects which it is thought he should master before he is allowed to practice. Some years ago, the time for the completion of medical studies was increased from four to five years, but the longer period has still proved too short and only a minority of students complete their curriculum in that period, six and one-half or seven years being usually required. The subject has engaged the attention of the General Medical Council (the body appointed by the government to supervise medical education and exercise discipline over the profession) but no solution of the difficulty has yet been found. A committee was appointed to consider the place in the student's career which the preliminary sciences should occupy and to frame and submit to the council a pattern scheme of medical education, whereby the required minimum of the several subjects to be included in the curriculum could be adequately studied, and the requisite examinations thereon be passed within the period

prescribed by the curriculum. The committee has declared itself unable to suggest any remedy for the congestion of the medical curriculum. To meet the difficulty, Sir Henry Morris, a member of the council, proposes that the preliminary scientific studies, such as chemistry, physics, botany and zoology, which now form part of the curriculum, should be removed from it and pursued by the students in the schools, leaving the five years of the curriculum free for the strictly professional subjects, anatomy, physiology, medicine, etc. The council, on the other hand, holds that as the supreme authority in medical education it cannot sanction any part of the medical education being undertaken except under its control. This objection seems captious and unreasonable. The greater part of the education of the student before he enters medicine is necessarily outside the control of the council and adding to it chemistry, physics, etc., involves no question of principle. By means of a preliminary examination the council could easily insist on an adequate knowledge of these subjects before the beginning of the medical curriculum.

Infectious Diseases in London in 1910

The returns just published of the Metropolitan Asylums Board (which controls all the fever hospitals of London) shows several facts of interest. During 1910, 15,053 patients with the most important of the infectious diseases were admitted to the hospitals. These diseases were as follows; scarlet fever, 9,682 cases; diphtheria, 4,698; typhoid fever, 673. Two hundred and six deaths from scarlet fever occurred, being a case-mortality of 2 per cent. This number is less than half the average annual number of the preceding nine years, and lower than that in any year for which statistics exist. There were 360 deaths from diphtheria in the hospitals, a case-mortality of 8 per cent. The total deaths from diphtheria in London during the year were 434. In the three preceding years the deaths numbered 781, 724 and 605 respectively, showing a steady decline which reached its maximum last year. The deaths from typhoid fever in the hospitals numbered 126, a mortality of 19.5 per cent. The total number of deaths in London was 198,107, below the average in the nine preceding years, but an increase of fifty-two on the unprecedently low number of 1909. Thus the mortality of scarlet fever in the metropolis has shown in recent years a continuous decline, the disease being evidently of a milder type. On the other hand the case-mortality of diphtheria and typhoid shows no such decline.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Feb. 10, 1911.

Radiography as a Means of Ascertaining Whether or not an Infant has Lived

The means of medicolegal investigation to ascertain if a child has lived or not have hitherto been much restricted and have offered no absolute certainty. It appears from the researches which Dr. C. Vaillant has reported to the Académie des sciences that radiography offers a means of determining this point. If the fetus has not lived, no organ is visible, even if radiography is practiced after the eighth day in summer and the fifteenth day in winter. Later on, in frozen subjects, the whole arterial and venous system becomes visible on the negative, because putrefaction begins in the organs which functionate during intra-uterine life. On the other hand, in the bodies of infants which have lived, all the organs are visible if radiography is used as late as the tenth day after death. The only perceptible modification is produced by the augmentation of gas in the abdominal organs. There is no room for error in the interpretation of the results of radiography, whether it is used immediately after birth or later, since in either case the results are different in the case of an infant which has lived from those in a fetus which has not lived.

Relapses and Complications After Injections of Salvarsan

On February 2, before the Société française de dermatologie et de syphiligraphie, Dr. Bodin reported the case of a patient with precocious malignant syphilids which were intractable to treatment with mercury and iodids, but which were cured within fifteen days after an injection of 55 cg. of salvarsan. A month afterward, however, the patient had a relapse which yielded to a new injection of salvarsan, relapsing a second time at the end of forty-six days.

Moreover, Professor Gaucher and Dr. Gougerot observed complications following immediately after injections of salvarsan (two cases of pulmonary embolism with sharp pain, and respiratory difficulty a few minutes after the injection, continuing for several hours), and later complications (two cases of phlegmasia alba dolens) appearing four or five days after the injection.

The Reform of Medical Instruction

The Association corporative des étudiants en médecine has just decided to demand: (1) the limitation of *stagiaires* to the number of twelve for each hospital service, which necessitates the extension of the *stage* to a greater number of services; (2) the creation of a superior medical council, composed in part of the professors of the Faculté, and in part of the delegates of the medical *syndicats*, with consultative voice for the corporative associations of medical students.

Moreover, considering that the organization of professional instruction demands a more complete reform of the hospital *stage*, the association demands an investigation looking toward the modification of the externship by which it should become a function open to all students by an examination and not by a *concours* as is the case at present. The association believes that all medical students should exercise this function for at least two years to obtain the diploma of doctor of medicine.

The Laborie Prize

The Société de chirurgie has divided the Laborie prize for 1910 as follows: $400 (2,000 francs) to Dr. Paul Sourdat of Paris for his radiographic study of tuberculosis of the bones and articulations, coxalgia and white swelling of the knee; $160 (800 francs) to Drs. Jules and André Boeckel of Strasburg for their study of the fractures of the spine without medullary symptoms; $100 (500 francs) to Dr. Guibé of Paris for his paper on the paralysis of the suprascapular nerve.

Personal

Dr. A. Kelsch, former *médecin inspecteur* of the service of military hygiene and member of the Académie de médecine has just died. After holding professorships in various French medical schools, he was appointed to the military hospital of Algeria, but was recalled to Paris two years later as professor of epidemiology at the Ecole d'application du service de santé militaire du Val-de-Grâce. In Algeria he accumulated much material on paludism, dysentery, liver abscesses, etc., which he utilized in the treatise on the diseases of warm countries, by himself and Kiener. He was the author also of a treatise on epidemic diseases in several volumes and numerous papers on epidemiology and hygiene presented before the Académie de médecine.

Dr. Claude Martin of Lyons, who had acquired great reputation in the practice of prosthesis of the face and mouth, has recently died. He was connected with the Hôtel-Dieu de Lyon, and was one of the most valued collaborators of Professor Ollier in all the procedures on the face which required the use of prosthesis appliances. He was appointed in 1908, national correspondent of the Académie de médecine de Paris.

Dr. William J. Mayo, of Rochester, Minn., is one of the foreign correspondents recently elected by the Société de chirurgie de Paris.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Feb. 10, 1911.

Personal

The noted Berlin physiologist, Prof. H. Munk, has been given the honorary title of doctor by the veterinary school.

R. Stern, director of the medical policlinic and head physician of All Saints Hospital at Breslau, died Feb. 1, of influenza, aged 45. In 1892 he joined the faculty as privat-docent. His work lay mostly in the field of experimental pathology, but he was chiefly known by his treatise on "The Traumatic Origin of Internal Diseases," which for the first time systematically set forth the importance of trauma in internal pathology. The book had a wide circulation. A few years ago some interest was aroused by the fact that Stern accepted a call as director of the internal medicine clinic at Greifswald and later declined it without special reason. At one time there was a rumor of mental aberration. He traveled for some months, but later resumed his work at Breslau, and at the last meeting of the scientific association at Königsberg he delivered a fine address on a bacteriologic theme.

The Journey of the Crown Prince Interrupted by the Plague

In consequence of the extremely severe outbreak of the plague in eastern Asia, the German Crown Prince has abandoned his tour of the world and will begin the return journey at Calcutta. As the wide extent of the plague in northern China precludes the return by the trans-Siberian railway, he

will come back by way of the Red Sea. Terrible reports are made in the newspapers regarding the daily spread of the disease in China. Probably the reports are exaggerated, and it is to be assumed that the epidemic had begun before the Chinese authorities permitted reports of it. According to statements made in the Reichstag by a representative of the imperial naval office, Tsingtau, a city lying in the German protected area, is threatened by the plague. As a result the city is isolated on the land side by a military cordon, the railroad is interrupted at Syfang, all persons remaining in the city are kept under strict surveillance, and all ships are subjected to quarantine. The military surgeons who have recently been discharged and were about to return to Germany will remain in Tsingtau. The Chinese government has requested the German government to send European physicians to the region infected with plague. Russia has suggested an international commission to investigate the conditions of the epidemic on the spot. As a precautionary measure our imperial health council will take up the question how far Germany itself is threatened by the plague, and formulate measures of protection at the proper time.

The Campaign Against Lupus

The department of education recently notified all school principals of the danger of lupus and the necessity for its early recognition and proper treatment. It also warned the medical inspectors of schools to pay especial attention to lupus cases and report to the school director any found.

Instruction of Soldiers on Tuberculosis

In a suburb of Berlin, Wilmersdorf, a tuberculosis exhibition was installed a few weeks ago by the municipal authorities to educate the public. Statistics on the spread of tuberculosis, anatomical preparations and directions for the repression and prevention of tuberculosis, are shown, and lectures on these subjects are held together with other matters of the same sort. Lately more than 100 under-officers of the Berlin garrison have been conducted through the exposition daily by military surgeons and instructed with reference to the significance of the individual objects on exhibition.

Presidency of the Berlin Medical Society

At a session held for the purpose a few days ago, Senator declined a reelection as first president on account of his advanced age. As Senator has lately been failing in energy the society accepted his resignation and selected Professor Orth, the director of the pathological institute, in his place. Professor Kraus, director of the second medical clinic, was elected as one of the three vice-presidents in the place of Orth.

International Prize Competition of the Red Cross

In 1902 the Empress Maria Feodorowna, protectress of the Russian Red Cross, established the "Empress Maria-Feodorowna Foundation," a fund for the purpose of promoting new inventions which are intended to relieve the suffering of the wounded and sick on fields of battle. The income from the capital is to be distributed every five years on the occasion of the International Red Cross Conference. This was done first at the seventh conference in London, 1907. For Germany at that time the Doecker's barrack system and the Linxweiler system of transportation were each rewarded with a premium of $1,500 (3,000 rubles). The next competition occurs at the international conference in Washington, 1912. The income accumulated for distribution amounts now to about $10,000 (40,000 marks). The German member of the jury of awards is Professor Pannwitz of Charlottenburg.

International Scientific Research Trip to the Canary Islands

A scientific study trip to Teneriffe will occur in March and April of this year. In the spring of 1910, at the suggestion of Professor Pannwitz, president of the international commission for investigation of altitude and sunlight, a scientific expedition to the mountainous region of Teneriffe was undertaken, in which under the direction of Professor Zuntz, German, Austrian and English physiologists as well as the astronomer Mascart, of Paris, and Professor Müller of Potsdam, took part. Further investigations on the action of light in those especially illuminated regions are to be undertaken, for which German, Russian and Danish investigators have promised their cooperation.

Complete Edition of the Works of Robert Koch

At the request of the heirs of Robert Koch, that is, his second wife and the daughter of his first wife, a complete edition of the works of this gifted bacteriologist will be published by Professor Schwalbe with the cooperation of Professor Gaffky, director of the institute for infectious diseases, and Professor Pfuhl, Koch's son-in-law. In particular, the different articles scattered in various journals and now difficult of access are to be collected. In addition to the articles already published, suitable material selected from the numerous reports that Robert Koch made for the government authorities will be published for the first time. It is expected that the work, which is appearing under the care of the well-known publisher, Georg Thieme of Leipsic, will be completed by the end of the year.

Increase in Fees for Foreign Students at the Prussian Universities

For some years the demand has been made in the Prussian parliament (Landtag), as I have previously informed you, to raise the matriculation and tuition fees for foreigners in the universities and technical high schools. The authorities have hitherto been opposed to this, principally because they feared that similar restrictions would be imposed against German students in the foreign universities. Now, inasmuch as the home students are being crowded out sometimes by foreigners, the authorities have yielded so far that they have imposed for the summer semester of 1911 a double fee on foreigners for laboratory work and attendance on lectures. For students of the natural sciences and medicine this amounts to an increase of $2.50 (10 marks) and for other departments $1.25 (5 marks).

The Death-Rate in Relation to the Standard of Civilization

Dr. Prinzing, the medical statistician of Ulm, published in the last number of the *Archiv für Rassen- und Gesellschaftsbiologie* a very interesting study of the development of civilization from the standpoint of the death-rate. He states that the high infant mortality in countries with a low state of civilization is probably chiefly attributable to the great prevalence of acute infections. Among adults the mortality of males in the more highly civilized countries approaches that in the less civilized because of the unfavorable influences of industry and of the abuse of alcohol, while the mortality of the female sex is greater among the less civilized because of their lack of protection and the excessive demands made on their productiveness. In civilized countries old age is characterized by a higher mortality because in these countries the working power of old men very frequently cannot be sufficiently utilized. It might be assumed that the slight difference in the death-rate in the adult period depends on the fact that by the high mortality of children in the less civilized countries, the weaklings are eliminated and only the most resistant remain. But the death-rate of the first year of life must be viewed apart because, for example, in spite of their slight infant mortality, Servia and Bulgaria show the same death-rate as Hungary and Russia, with their high infant death-rate. Also the numerous deaths in later childhood in these countries can have only a small influence on the question as very many of them are caused by infectious diseases and their results, in which cases the mortality depends less on hereditary resistance than on the occurrence and virulence of the infection.

We cannot assume that those predisposed to tuberculosis are early eliminated by the great infant mortality in eastern Europe and that by this means the mortality of adults is diminished; for the mortality from tuberculosis is greater in these countries than in western Europe. Furthermore we have seen that the slight difference in mortality of adult males in eastern and western Europe depends not on an especially low mortality in the east, but on an increase in the mortality in the civilized countries by the factors above named. Still it would be incorrect to deny that the high infant mortality of eastern Europe has any influence on the less unfavorable mortality of adults. In a number of infectious diseases (e. g., small-pox, measles, scarlet fever, typhoid fever) immunity is induced by a single experience of the disease, so that many persons are protected in later life by having had these diseases in childhood, although on the other hand, these children's diseases cause many deaths. If the children in these countries could be protected by any measures against infections, they would in later life fall victims to these diseases in increased measure, under the ordinary conditions of adult life. Here we have to do with an acquired peculiarity. Opinions differ as to whether there is a congenital hereditary immunity; at any rate, it is very rare in case of diseases like small-pox and typhoid fever. In respect to certain diseases the adult civilized man does not need to acquire an immunity, which is secured only with such great sacrifice of human life, for he knows how to protect himself in a simpler way, by vaccination against small-pox, by general hygienic measures against typhoid fever and similar diseases,

and by early isolation of patients or by avoiding them himself in case of other diseases. If a Servian or Russian family wishes to have three children who shall reach at least the age of 14, there must be five or six born in this family, whereas in an English family only four births would be necessary for the same purpose. This is without doubt of great value for the latter nation, as every birth means danger to the life of the mother, necessitates temporary inability to work and the trouble and expense attending the rearing and death of young children. It is not very probable that by the selection of four instead of five or six children, the likelihood of preserving lives of inferior value is markedly increased, for in civilized countries, in the majority of the population, that is, the working classes, the preservation of doubtful lives is rare. In this respect from an economic point of view there can be no doubt that the death-rate which is common in the more highly civilized countries, consisting of a low mortality before the age of 35, constitutes a great gain for these nations.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Feb. 14, 1911.

An Excursion of the American Medical Association of Vienna

The American Medical Association of Vienna has been mentioned several times in previous letters in THE JOURNAL. It has at present a fully recognized position among the medical associations of this city, and is held in high esteem by its Austrian confrères. Recently, the association was invited to visit the Semmering, a favorite health resort, about 80 miles south of Vienna, where splendid accommodations for health-seeking patients were erected a short time ago. The American physicians—a party of about eighty—were led through the two hydrotherapeutic establishments situated some 3,000 feet above sea level, and were shown the various electric and other physical equipments there. The local magistrates and the medical men of the district were unanimous in declaring that the visit of the foreign physicians was regarded as very flattering, while on the other hand, the invitation shows what a position the American association has attained here, for this kind of excursion is not very frequent in this country.

A Students' Strike in Cracow

The appointment of a reactionary professor of philosophy named Zimmermann in the University of Cracow has led to serious consequences in hospitals of that city. The majority of the students there belong to the liberal or anticlerical party. They remonstrated against the professor, and as the appointment was not cancelled, riots and other disturbances followed. Medical students took the lead in these demonstrations. It seems to be the privilege of medical students, at least in this country, to be always at the head in the defense of the liberty of teaching. A number of students were suspended for at least one term, while others were excluded permanently. These severe measures produced a general strike at the university, and since numerous medical students of the higher classes or near graduation were busy in the hospitals, they too had to strike. This serious condition has been prevailing for some time, and the senate of the university has been forced to reconsider its decision; the lack of students is felt keenly in the wards and the radical mind of medical thinkers seems to be predominant in students' circles. They will not give in before the "disease," the reactionary experiment, has been eradicated.

Titles for Practitioners

It is intended to grant certain titles to distinguish medical men not holding hospital or similar appointments in this country. The titles are to be "Medicinalrath" and "Ober-Medicinalrath," which mean in fact nothing but sound imposing. In several medical corporations an energetic movement has been set on foot to prevent the passing of such a bill by the board of health, within whose jurisdiction this matter falls. The possession of such a title would, in the opinion of those who oppose the idea, give an unfair advantage to these men, for our public is very fond of titles and believes that a title is equivalent to better knowledge. Hence the title of "privat-docent" for instance, is much coveted by physicians here. We have already many titled doctors. In Vienna alone, over 20 per cent. of the total have the title of "Professor," "Docent" or "Assistant," and in the country titles mean even more, being less common. It is therefore likely that the opposition will carry the day.

Death of Professor von Braun

The Nestor of the gynecologists of this city, Professor von Braun, died after a short illness a few days ago. He was the last one of the old Vienna medical school, which counted Skoda, Rokitansky, Billroth, Kaposi and Nothnagel among its members. Professor Braun was the first teacher of midwives in this country, and his earnestness, dexterity and sagacity soon gained for him a leading position and an enormous private practice in the highest circles. He found time for useful scientific work and published writings on extra-uterine pregnancy; the fetal malformations; the anatomy of the pelvis, and obstetric surgery. His death at the ripe age of 82 came as a shock to his numerous friends.

Marriages

REUBEN FRANK DAVIS, M.D., to Miss Bessie Lee Leckey, both of Glasgow, Va., February 15.

GEORGIANA MARGARET DVORAK, M.D., and John Joseph Theobald, both of Chicago, Oct. 29, 1910.

HARVEY WASHINGTON WILEY, M.D., Washington, D. C., to Miss Anna Campbell Kelton, February 27.

FREDERICK WILLIAM MAYER, M.D., Indianapolis, to Miss Margaret Welch, at Indianapolis, February 8.

DAVID WAYNE FOSLER, M.D., Indianapolis, to Miss Katherine Krauss Vonnegut, at Indianapolis, February 28.

ALBERT JULIUS GEIGER, M.D., U. S. Navy, to Miss Margaretta Benners Ashbridge of Philadelphia, February 15.

JOHN WATKINS WILLIAMS, M.D., Everetts, N. C., to Miss Bertie Zenobia Gardner of Williamston, N. C., January 18.

JONATHAN D. HINSHAW, M.D., Canon City, Colo., to Miss Elizabeth Love of Silver Cliff, Colo., at Canon City, February 8.

ORVILLE E. SPURGEON, M.D., Muncie, Ind., to Miss Ella Maria Worley of Washington Court House, O., at Muncie, January 18.

Deaths

Aloysius Oliver Joseph Kelly, pathologist, and diagnostician, editor of the *American Journal of the Medical Sciences,* died at his home in Philadelphia, February 23, from complications following an attack of influenza, aged 41. He was a native of Philadelphia, received the baccalaureate degree in arts in 1888, and three years later the degree of M. A. in LaSalle College. He graduated from the Medical Department of the University of Pennsylvania, Philadelphia, in 1891, and for two years did postgraduate work in London, Dublin and Vienna, where he devoted special attention to pathology and internal medicine. He was associate professor of medicine in his alma mater; professor of the theory and practice of medicine in the University of Vermont, College of Medicine; and professor of pathology in the Woman's Medical College of Pennsylvania, Philadelphia. He was a member of the American Medical Association, Association of American Physicians, and American Association of Pathologists and Bacteriologists; a fellow of the College of Physicians of Philadelphia, and of the American Academy of Medicine. He was visiting physician to St. Agnes and University Hospitals, and pathologist to the German Hospital. His literary work included a text-book on the practice of medicine, published in 1910; the joint editorship, with Dr. John H. Musser, of an extensive system of therapeutics; and, as stated above, he was for several years editor of the *American Journal of the Medical Sciences.* Dr. Kelly's death deprives the medical profession of one of its most promising pathologists and internists.

Edward Strong Bogert, M.D. Rear Admiral U. S. Navy, retired, died at the home of his daughter in New York City, February 16, aged 74. Dr. Bogert entered the Navy in June, 1861, served through the Civil War, and was on duty with Farragut's Squadron at the capture of New Orleans and the campaign of the Mississippi River; he was promoted to medical director, and was retired May 7, 1898. He was a graduate of the New York University Medical College in 1860, and a member of the Society of Bellevue Hospital Alumni.

William Henry McDonald, M.D. Bellevue Hospital Medical College, 1871; a member of the Colorado State Medical Society; a veteran of the Civil War, in which he served in both the Army and Navy; for twenty-four years resident physician at Pueblo for the American Smelting and Mining

Company, and surgeon for the Missouri Pacific and Santa Fe systems; died at his home in Pueblo, February 3, from chronic interstitial nephritis, aged 64.

George W. Osborne, M.D. Columbus (O.) Medical College, 1883; a member of the Ohio State Medical Association; died at his home in Dry Run, February 19, from paralysis, aged 58.

Charles Hamlin Phelps, M.D. Medical College of Ohio, Cincinnati, 1876; a member of the Ohio State Medical Association; president of the St. Mary's Board of Education; died suddenly at that place, February 21, aged 68.

Franklin J. Foster, M.D. Georgetown University, Washington, D. C., 1871; a veteran of the Civil War; and for twenty-five years an employee of the War Department; died at his home in Washington, February 5, from cerebral hemorrhage.

Joseph A. W. Hull, M.D. Medical College of Ohio, Cincinnati, 1880; died at his home in Stella, Neb., February 7, from hemorrhage of the stomach, aged 54.

Frederick Coggeshall, M.D. Harvard Medical School, 1892; a member of the American Medical Association, and American Academy of Medicine; a specialist in gynecology and neurology; a member of the neurologic staff of Boston Dispensary; formerly physician to the Boston Hospital and pathologist to Carney Hospital; died at his home in Boston, February 1, aged 50.

Thomas Markley Trego, M.D. College of Physicians and Surgeons, New York City, 1874; a member of the American Medical Association; attending physician to the Child's Hospital, St. Margaret's Home for Infants, and the Home for Aged Men, Albany; died at his home in Albany, N. Y., February 16, from pneumonia following a fall, aged 63.

Percy Duncan Littlejohn, M.D. Yale University, New Haven, 1897; a member of the Connecticut State Medical Society; and of the American Urological Association; first assistant to the chair of genitourinary surgery in the New York Post-Graduate Medical School; died at his home in New Haven, February 11, from heart disease, aged 36.

Albertus T. Ritter, M.D. Baltimore (Md.) Medical College, 1893; a member of the Medical Society of the State of Pennsylvania; physician to the Perry County Alms House, and the Tressler Orphans' Home; died at his home in Loysville, February 10, from the effects of an overdose of chloroform, aged 40.

Massillon Cassatt, M.D. Medical College of Ohio, Cincinnati, 1864; for many years a practitioner of Cincinnati; formerly a member of the American Medical Association; a life member of the Cincinnati Academy of Medicine; died in Jacksonville, Fla., January 5, from organic heart disease, aged 71.

David Marshall Devilbiss, M.D. University of Maryland, Baltimore, 1872; a member of the Medical and Chirurgical Faculty of Maryland; formerly health officer of Frederick County, and a member of the state senate in 1903; died at his home in Woodville, February 14, from nephritis, aged 66.

Benjamin T. Abbott, M.D. Jefferson Medical College, 1870; a member of the American Medical Association; president of the Cape May County and Ocean City, N. J., boards of education; died suddenly, February 17, in the Pennsylvania Railroad station, Ocean City, from cerebral hemorrhage, aged 67.

Henry Schmalhausen, M.D. Jefferson Medical College, 1867; a pioneer practitioner of Montana; a veteran of the Civil War; surgeon-major of the First Regiment, Mont., National Guard; a resident of Idaho since 1875; died at his home in Pony, recently, and was buried January 26.

Oscar F. Pile, M.D. College of Physicians and Surgeons, Chicago, 1888; a member of the American Medical Association, and Tri-State Medical Association; United States pension examiner; died at his home in Memphis, Mo., February 12, after an operation for duodenal ulcer, aged 52.

James Pickens Burke, M.D. University of Pennsylvania, Philadelphia, 1853; a member of the Medical Association of the State of Alabama; surgeon of a Mississippi regiment in the Confederate service during the Civil War; died at his home in Meridianville, February 12, aged 80.

George William Mahle, M.D. University of Maryland, School of Medicine, Baltimore, 1905; a member of the American Medical Association; on the staff of the Robert Garrett Hospital for Children, Baltimore; died at his home, February 20, from tuberculosis of the lungs, aged 29.

Robert Hamilton Phelps, M.D. Syracuse (N. Y.) University, 1894; a member of the American Medical Association; local surgeon at Norwich, N. Y., of the Delaware, Lackawanna and Western, and New York, Ontario and Western railways; died at his home, February 6, aged 41.

Charles Joseph Hamnett, M.D. Bellevue Hospital Medical College, 1865; formerly of Homestead, Pa.; a contract surgeon in the Army during the Civil War; died at the home of his daughter in Washington, Pa., February 3, from obstruction of the esophagus, aged 76.

Edwin D. Leidy, M.D. Jefferson Medical College, 1885; a member of the Medical Society of New Jersey; formerly medical examiner of the public schools of Flemington Borough and Raritan Township; died at his home in Flemington, February 17, aged 53.

Lloyd Alexander Craig, M.D. University of California, San Francisco, 1907; a member of the Medical Society of the State of California; resident physician at St. Mary's Hospital, San Francisco; died at the home of his brother in Oakland, February 7, aged 26.

John Loring Burnham, M.D. Dartmouth Medical School, Hanover, N. H., 1888; a member of the American Medical Association; formerly consulting physician to Elliot Hospital, Manchester, N. H.; died recently at his home in Las Cruces, N. M., aged 53.

William Palmer Chisholm, M.D. New York University Medical College, 1881; a member of the Massachusetts Medical Society; formerly consulting surgeon to Brockton City Hospital; died at the Insane Hospital, Taunton, Mass., February 16, aged 58.

William L. Egan, M.D. Tulane University, New Orleans, 1882; a member of the Louisiana State Medical Society; formerly a member of the Shreveport Board of Health; died at his home in that city, February 19, from heart disease, aged 55.

Thomas Tomelty, M.D. Rush Medical College, 1899; a member of the American Medical Association; for several years health officer of Vernon and Muskego, Wis.; died at his home in Big Bend, Wis., February 16, from pneumonia, aged 45.

Frederic Garvin Conger, M.D. Western Pennsylvania Medical College, Pittsburg, 1895; secretary of the board of pension examiners of Mondovi, Pa., died at the home of his sister-in-law, in Oakland, Pittsburg, January 31, aged 41.

James Youngs Tuthill, M.D. Bellevue Hospital Medical College, 1864; a member of the Medical Society of the State of New York; and Associated Physicians of Long Island; died at his home in Brooklyn, February 15, aged 69.

George Whitfield Ward, M.D. Bellevue Hospital Medical College, 1874; for many years a member of the staff of the Metropolitan Throat Hospital, New York City; died at his home in New York City, February 8, aged 60.

John H. Williamson, M.D. Jefferson Medical College, 1859; a member of the Medical Society of the State of North Carolina; died at his home near Rockingham, February 11, from heart disease, aged 82.

Clarence Howard Slightam, M.D. College of Physicians and Surgeons, Chicago, 1899; formerly of Eau Claire, Wis.; in charge of the Native Hospital, Juneau, Alaska; died in that city, recently, aged 34.

Robert H. McCamy, M.D. University of Pennsylvania, Philadelphia, 1879; for more than thirty years a practitioner of Kensington, Philadelphia; died at his home, January 5, aged 55.

Richard Asbury, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1865; for many years a practitioner of Monroe City, Mo.; died at his home in Hunter, Okla., January 19, aged 72.

Frank Orlando Webber, M.D. Harvard Medical School, Boston, 1877; a member of the Massachusetts Medical Society; died at his home in Cambridge, February 14, from pneumonia, aged 56.

Charles Franklin Kingsbury, M.D. Dartmouth Medical School, Hanover, N. H., 1856; a member of the Massachusetts Medical Society; died at his home in West Medford, February 14, aged 86.

Lafayette Summers, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1876; a member of the Iowa State Medical Society; died at his home in Milton, February 6, aged 61.

Charles Carroll McCaffrey, M.D. Eclectic Medical Institute, Cincinnati, 1908; of Huntington, W. Va.; died in Seton Hospital, Cincinnati, Dec. 21, 1910, from pneumonia, aged 36.

Orrel McFadden, M.D. Albany (N. Y.) Medical College, 1865; for forty-one years a practitioner of Massena, N. Y.; died at his home, Dec. 29, 1910, from nephritis, aged 74.

Alexander Franklin Binkley, M.D. Vanderbilt University, Nashville, Tenn., 1879; died suddenly at his home near Sycamore, Tenn., February 4, from acute gastritis, aged 66.

Adolph Kraemer, M.D. University of Zurich, Switzerland, 1894; a specialist on diseases of the eye; of San Diego, Cal.; died at his home in that city, January 24, aged 46.

David M. Miller, M.D. College of Physicians and Surgeons, Baltimore, 1887; died at his home in Indian Springs, Tenn., January 8, from disease of the kidneys, aged 69.

Daniel Franklin Royer, M.D. Jefferson Medical College, 1875; a practitioner of Orange, Cal., for twelve years; died Nov. 7, 1910, after an operation for appendicitis.

Theophilus N. Kirkpatrick, M.D. College of Physicians and Surgeons., Keokuk, Ia., 1872; died at his home in Letcher, S. Dak., Nov. 8, 1910, from diabetes, aged 61.

Andrew Niles, M.D. Philadelphia University of Medicine and Surgery, 1852; died in his apartment in Carbondale, Pa., January 17, from senile debility, aged 79.

James C. Wright, M.D. Medical College of Georgia, 1894; a member of the American Medical Association; died at his home in Folkston, January 2, aged 52.

Helen M. Miller, M.D. Woman's Medical College of Pennsylvania of Pennsylvania, Philadelphia, 1884; died at her home in Cleveland, January 6, aged 58.

Frank R. Wyroznski, M.D. Ensworth Medical College, St. Joseph, Mo., 1906; died at his home in St. Louis, February 6, from tuberculosis, aged 32.

Frank Moore Doyle, M.D. Western Pennsylvania Medical College, Pittsburg, 1897; died at his home in Pittsburg, February 7, aged 39.

Josiah M. Bosworth, M.D. Southern Medical College, Atlanta, 1887; died at his home in Atlanta, February 1, aged 69.

"The Propaganda for Reform"

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION.

PLANTOXINE

The Therapeutic and Commercial Possibilities in Milk Sugar

Some "patent medicines" are viciously fraudulent; others are simply fraudulent. Some contain habit-forming and dangerous drugs; others contain no drugs at all. Plantoxine is a nostrum marketed by the Plantoxine Company and we understand that the Plantoxine Company is really Edward W. Crittenden, a lawyer, who runs this business as a side line. The mere study of the advertising matter that accompanies Plantoxine would be sufficient to convince one that a lawyer had either written it or had very carefully "edited" it. Plantoxine is said to be:

"A Preparation of Constitutional Medicines formulated as a Corrective in Abnormal Conditions of the System which create Undue Susceptibility to Miasmatic Diseases, Plant Pollen, La Grippe, etc.; Chronic Malarial Diseases; Hay Fever, Hay Asthma, Rose Cold, etc.; Influenza and La Grippe."

In a descriptive booklet on the nostrum, the theory is advanced that "hay fever and malaria are regional associates," and that both of these pathologic states "viciate [*sic*] the blood." We are further told that "hay fever and la grippe are recognized as different forms of influenza." Having evolved these theories, the "inventor" of Plantoxine set about to discover a cure—or, as it is cautiously designated, "a successful treatment"—for these related diseases.

"After five years of diligent and painstaking effort along these lines such a remedy has been evolved."

The remedy, of course, is Plantoxine. Says the exploiter:

"In Plantoxine we now have a simple preparation of the classical constitutional medicines, delicately proportioned and adapted to the general pathology of these cases. It is guaranteed under the Pure Food and Drugs Act of June 30, 1906, and therefore may be considered perfectly safe, while its effectiveness in individual cases may be left to be decided by practical tests."

Naturally, a preparation possessing the properties claimed for Plantoxine would be brought to the attention of physicians by their patients. It is not surprising, then, that the Association's laboratory has been asked to examine this preparation to determine whether or not it contained cocain or any other dangerous or habit-forming drugs. The report of the Association's chemists follows:

LABORATORY REPORT

"The specimen received was a white, odorless powder having the physical properties of milk sugar. Qualitative tests demonstrated the absence of cocain and other alkaloids and indicated that the substance was probably milk sugar. Some time later the correspondent, who had first written to the laboratory, sent an original package of Plantoxine for examination.

"Plantoxine is sold in packages each containing 40 powders, each powder containing about 2 grams (30 grains) of the preparation. The package, which retails for $1.00, contains about 2¾ ounces of the preparation.

"Quantitative examination indicated that Plantoxine consists entirely of milk sugar. The presence of medicinal substances could not be determined. If present their quantities must be small.

"In this connection it should be pointed out that the effect of cocain or its substitutes on the tongue furnishes a very sensitive and fairly distinctive test which may be used by physicians with advantage. If a trace of a powder, such as this, produces no benumbing effect when placed on the tongue the practical absence of cocain or its substitutes may be assured."

The story is told by Mr. Adams in "The Great American Fraud," that a general agent for a jobbing house once declared that he could put an article on the market, possessing neither remedial nor stimulant properties, and by skilful advertising persuade people that it had great therapeutic virtues. Challenged to a bet, he put out his "remedy," and within a year had won the wager. His preparation was nothing but sugar! In the light of the analysis just given, one wonders whether Mr. Crittenden—The Plantoxine Co.—also, is trying to win a bet. As this business has been conducted now about four years, it has ceased to be an experiment and is, presumably, on a paying basis.

The original boxes in which Plantoxine comes, give the price as 75 cents. These words have been obliterated and the preparation is now sold for $1. Doubtless, the advance is due to the increased cost of living—sugar probably costs more now than it did four years ago.

We must give Mr. Crittenden credit for at least a certain degree of modesty in the claims made for his discovery:

"Plantoxine must not be expected to cure everything. Laxatives, lithia salts, calomel or other special treatment temporarily may be required, but it should be remembered that such measures are to be employed only when specially indicated and that they are not to be considered as being regularly associated with Plantoxine treatment."

Truly Mr. Adams was right when he said that "our national quality of commercial shrewdness fails us when we go into the open market to purchase relief from suffering." While, probably, it would be difficult to get the average, wide-awake American to purchase wooden nutmegs it seems to be an easy matter to sell milk sugar worth 10 cents a pound, wholesale, at $5.82 a pound, retail—providing it is sold as a "cure" for hay fever and "related diseases"!

Organic Iodin Preparations

Iodism is one of the serious disadvantages connected with the use of iodin. To obviate it various suggestions have been made but the combinations of iodids with other remedies designed to lessen their poisonous effects have failed to obviate the occurrence of iodism. This disadvantage of the iodids has led to the recommendation of numerous substitutes which are generally combinations of iodin with various organic radicals. The essential inadequacy of these preparations is emphasized by von Notthafft (*Monatsh. f. prakt. Dermat.*, Oct. 15, 1910, p. 343). He says: "Where iodism is indeed less frequently observed (in these cases indeed it is not wholly excluded), a more careful observation establishes the fact that the preparation either has other disadvantages or that the lower degree of toxicity has in fact its basis in a feebler activity; either the substitutes evolve too little iodin or they split it off with greater difficulty." This is true of substitutes

for iodids in general, such as iodoform, iodol, iodolacid, iodipin, iodolenum, iodomeninum, iodopyrin, iodeigone, sajodin and others.

Iodival has a peculiar position. It is true that it produces less irritation of the stomach and intestine but symptoms on the part of the nervous system occur so much the more readily. According to Notthafft, this is to be regretted as the remedy is especially recommended for syphilis of the nervous system. Iothion has the disadvantage of producing cutaneous irritation, so that it cannot be used on sensitive skins. Notthafft reports his experiences with iodoglidin, a preparation in which iodin is combined with a nuclein-free, non-irritating vegetable albumin. The claim has been made that this preparation is free from objectionable side effects. Notthafft is of the impression that it is somewhat better tolerated than the iodids, although he cannot base this on absolute figures because, as is well known, the tolerance of the iodids varies extremely with different people. He finds, however, that it sometimes disagrees with the stomach and may produce serious iodism of which he reports two interesting cases. He sums up his opinion of iodoglidin as follows: It is in general an effective preparation in syphilis, although it acts somewhat more slowly than the iodids. It induces toxic effects somewhat less frequently; still acne, coryza, intestinal affections and nervous disturbances are not rarely observed. While it is a practicable remedy and while it may be tried in certain cases in which other iodin preparations are not borne, and might have a field for application in cases in which the body should contain little salt, still the unlimited praise which it receives in certain circulars and abstracts cannot be accepted. Notthafft cannot agree with the opinion of Seifert and Imhoff that it is tasteless. On the contrary it possesses a somewhat sharp taste resembling mustard oil which is disagreeable to many persons. The claim of Zieler that it produces iodism only in persons with marked idiosyncrasy must be expressly denied.

It is evident from these observations that the claims made for substitutes for the ordinary preparations of iodin should not be accepted without critical examination.

Green Extracts

Green extracts or tinctures of fresh herbs have been introduced into pharmaceutical practice on the theory that they would possess therapeutic properties which would be dissipated by drying the herbs. This may possibly be true of a few plants but for the most part, especially for plants which contain non-volatile, active constituents, the plan is not a good one on account of the variable amount of water contained in the fresh plant. These extracts are official in the British Pharmacopeia and a general formula for tinctures of fresh herbs is included in the United States Pharmacopeia. The following from the *British and Colonial Druggist*, Jan. 20, 1911, shows the unreliability of these preparations:

Noteworthy among a large number of interesting points in the nineteenth annual laboratory report of Messrs. Southall Bros. and Barclay, Limited, are some observations on the green extracts of the B. P., which have again manifested their unreliability and variation in strength. Evidence of this is given by the following figures of total alkaloids in the green belladonna extract prepared from the herb of the last nine seasons:

1.38 per cent.	0.87 per cent.	1.57 per cent.
1.50 per cent.	1.04 per cent.	0.98 per cent.
1.08 per cent.	1.25 per cent.	0.80 per cent.

Thus, the extract of the last season was little more than a half the strength of that of 1908. Worse still, a sample obtained recently of undoubted purity gave only 0.73 per cent. And again, as regards hyoscyamus, the total alkaloid yielded by a bulk sample of last season's manufacture was 0.084 per cent.—a very low figure. These poor results may perhaps be traced to the wet season, but, having regard to the fluctuations indicated, the view that the green extracts will not survive the present edition of the Pharmacopeia is likely to be confirmed by the event. If they should be retained it appears to be very desirable that standards of alkaloidal strength should be fixed.

As extracts of green drugs in times past have frequently been shown to be variable and unreliable, the observations noted above form another link in the chain of evidence condemning such preparations.

While the formula in the United States Pharmacopeia for the preparation of green tinctures is a general one, the consideration of the facts cited, is recommended to the committee now engaged in revising the Pharmacopeia.

Association News

CENTRAL ROUTES TO LOS ANGELES

More Details of Railroad Plans for the Trip to the Next Session of the American Medical Association

The next annual session of the American Medical Association will be held in Los Angeles, Cal., June 27-30, 1911. Several announcements have appeared in THE JOURNAL: A list of hotels with rates was published February 18, page 527; the railroad rates from the Mississippi Valley were announced February 18, page 528; a preliminary announcement of the entertainments was given February 25, page 605. There will be a special convention issue of THE JOURNAL as usual in May, giving the program and full particulars; in the meantime various items of information will be given from week to week. The Transportation Committee has submitted the following:

CENTRAL ROUTES TO THE LOS ANGELES SESSION

Last week attention was called to the American Medical Special to Los Angeles over the Santa Fe and the reasons were given for selecting this route. This week, we call attention to the central routes and the points of interest along the following lines:

There are several excellent roads out of Chicago, among which may be mentioned the Burlington, the Rock Island, the Northwestern, the Chicago, Milwaukee and St.Paul, the Illinois Central and the Chicago and Great Western. Most of these lines run magnificent trains through to California. One may go by way of Denver, Salt Lake City and San Francisco to Los Angeles or take the short line from Salt Lake City directly to Los Angeles.

From Denver one may go south through Colorado or by the Denver and Rio Grande to Salt Lake City. On the Denver and Rio Grande is perhaps the most beautiful mountain scenery in this country. Salt Lake City is well worth seeing as is Salt Lake itself which is crossed by the train. West of Salt Lake on the Southern Pacific or Western Pacific one crosses the Great American Desert, then over the Sierra Nevada mountains to San Francisco and down through California to Los Angeles.

From Salt Lake City one may go by the San Pedro, Los Angeles and Salt Lake line directly to Los Angeles. This is the shortest route from Salt Lake City to Los Angeles and crosses a mountainous and desert country. Or one may go from Chicago to Omaha, then over the Union Pacific to Ogden and from there to San Francisco and then down to Los Angeles.

The fare over any of these routes is the same, namely $62.50 for the round trip from Chicago. This rate applies if one goes by any one of these routes and returns by the same or by any other of them; or if one goes by one of them and returns by a southern route; or vice versa. To go by any one of them and to return by one of the northern routes an additional fare of $15.00 will be charged. One cannot both go and return by one of the northern routes at the rates here quoted.

The time by all of the central routes is practically the same, namely, about three days unless stops are made on the way.

Details of the northern routes will be published next week; and later accounts of special trains will be given.

M. L. HARRIS, Chicago,
Chairman of the Committee on Transportation.

Correspondence

Danger of Trichinosis from Pork

To the Editor:—From time to time reports of outbreaks of trichinosis reach the Department of Agriculture, affording indisputable evidence that the extremely unhygienic custom of eating raw or imperfectly cooked pork is followed to some extent in the United States. On account of the danger involved in this custom, and on account of the common belief by persons aware of the existence of such a disease that pork inspected and passed under the federal meat-inspection law has been inspected for trichinæ, the Department of Agriculture has issued the following notice:

COOK PORK WELL

Cases of illness sometimes occur from eating uncooked or insufficiently cooked pork which is infested with a microscopic parasite commonly known as trichina or flesh-worm, the scientific name being *Trichinella spiralis*. An average of 1 or 2 per cent. of the hogs slaughtered in the United States are infested with this parasite. When transmitted to human beings, trichinæ may cause serious illness, sometimes resulting in death. Out of about 15,000 cases of trichinosis recorded in medical literature, most of which occurred in Europe, 830 resulted fatally.

No method of inspection has yet been devised by which the presence or absence of trichinæ in pork can be determined with certainty, and the government meat inspection does not include inspection for this parasite. All persons are accordingly warned by the United States Department of Agriculture not to eat pork, or sausage containing pork, whether or not it has been inspected by federal, state or municipal authorities, until after it has been properly cooked.

A temperature of about 160° F. kills the parasite; therefore pork when properly cooked may be eaten without any danger of infection. Fresh pork should be cooked until it becomes white and is no longer red in color in all portions of the piece, at the center as well as near the surface. Dry salt pork, pickled pork, and smoked pork previously salted or pickled, providing the curing is thorough, are practically safe so far as trichinosis is concerned, but, as the thoroughness of the curing is not always certain, such meat should also be cooked before it is eaten.

A pamphlet giving information on the subject may be obtained on application to the Secretary of Agriculture, Washington, D. C.

I desire to ask the cooperation of the medical profession in giving publicity to the fact that pork in its raw state is a dangerous article of diet, and would also request that any cases of trichinosis which may come under the care of readers of this article be reported to this bureau. The information especially desired is the number of cases and of fatalities, date and place of occurrence of the outbreak, nationality of the patients, and source of the pork which caused the outbreak.

A. D. MELVIN, Washington, D. C.
Chief of the Bureau of Animal Industry, United States Department of Agriculture.

Anesthetic vs. Carbon Dioxid

To the Editor:—I have read with interest your editorial on "The New Theory of Shock," in THE JOURNAL, Feb. 11, 1911, page 424.

In 1896, I was the guest of the Neurological Society of London, when Mr. Waller demonstrated the effects of anesthetics on peripheral nerves. He showed that ether was the safest anesthetic and that it was better combined with carbon dioxid, as then the nerve showed more rapid response to electrical stimulation. When chloroform alone was used he showed that the peripheral nerves would not respond to electrical stimulation but that when the chloroform was mixed with carbon dioxid they readily responded to electricity and returned to normal. Ever since then, when I administer chloroform I give a little of the drug but keep my hand over the mask, thus making the patient inhale his own breath, in this way giving a certain amount of carbon dioxid.

I have always had good results with this method of anesthesia. Once I was present at an operation when the patient stopped breathing; she was resuscitated and the operation carried to a successful conclusion by administration of chloroform plus rebreathed air—carbon dioxid. In December, 1901, a colleague had a chloroform fatality in a patient with nephritis, and as I had recently had personal experience with nitrous oxid-ether anesthesia, I advocated its adoption in this case; thereby I had the honor to introduce this form of anesthesia into Cincinnati with the original Bennett apparatus. This has been used continuously since at the Ophthalmic Hospital with satisfaction and success. Here, again, we have the carbon dioxid factor for the nitrous oxid only starts the anesthesia and then comes the ether, and by the closed rubber bag we again have the patient breathe carbon dioxid.

Your editorial explains Mr. Waller's demonstration of 1896 which showed that anesthetic plus carbon dioxid is safer than anesthetic alone, and that ether plus carbon dioxid is safer than chloroform in any combination.

W. EDWARDS SCHENCK, M.D., Cincinnati.

One Physician's Method of Increasing His Income

To the Editor:—I wish to contribute a statement to the subject of the remuneration of physicians:

I have been in the general practice of medicine since 1890 in Detroit on the same lot on which I was born. For twenty years I trusted all applicants for medical aid with results approximately as follows:

2 per cent. would pay me promptly.
13 per cent. could pay me only "when I went after them."
25 per cent. got out of paying me in every possible way.
60 per cent. did not pay me at all.

Jan. 1, 1910, I turned over a new leaf, and referred to other physicians all would-be patients who did not pay cash and had not approved credit. In 1910, the income from my practice was 98 per cent. greater than my average yearly income for the preceding twenty years and my expenses for 1910 were less than the average yearly expenses for the same period. Except for the fact that I gave my individual attention to my invalid mother for the three years prior to 1908, which cut into my practice considerably, I am unable to assign any other cause than this change of policy for the increase in income.

Since Jan. 1, 1910, I have had more time for reading, refreshment and sleep; and my present plan is preferable to that of those physicians whose ambition is to have the "largest practice" in a community at the cost of poor health or an early death.

JOHN L. IRWIN, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FRENKEL'S REEDUCATIVE MOVEMENTS

To the Editor:—Kindly give me some information about Frenkel's exercises. On page 453 of THE JOURNAL, of February 11, are references to them, and I would like to know the method of using these exercises. E. A.

To the Editor:—In the abstract of an article on locomotor ataxia by Dr. Billings, I notice his recommendation of Frenkel's reeducation movements. What are these procedures?

DR. C. F. BOUCEK, Allegheny, Pa.

ANSWER.—References to the principal articles dealing with the reeducation of the muscles in tabes dorsalis by the method of Frenkel are given in THE JOURNAL, July 18, 1908, p. 239. An abstract of one of Frenkel's articles is given in THE JOURNAL, July 22, 1905, p. 294. Some account of the treatment is given in various books on the practice of medicine, and in a recent article by J. K. Mitchell, "Treatment of Locomotor Ataxia by Exercises of Precision," in the *Old Dominion Journal of Medicine and Surgery*, June, 1909; this article was abstracted in THE JOURNAL, July 10, 1909, p. 149.

The principle of the method is that while the lesions of tabes cannot be affected by treatment, the lost coordination can be more or less completely restored. This treatment consists in a psychic training of the powers of coordination, not in the attempt to increase muscular power, which often is not impaired. For this reason, the fatigue which may interfere with coordination is a nervous phenomenon, and should not be increased by having the patient attempt severe exercise. Patients with tabes do not feel fatigue readily, but indicate it by loss of precision in their movements, increase in pulse-rate, etc. The patient must be watched lest he go too far, but also should be encouraged to undertake movements of which at first he may not deem himself capable. One of Frenkel's exercises is to have the patient lie in bed and try to place his heel in a set of cup-like depressions in a board placed across

the foot of the bed. In other instances, definite spaces are marked on the floor and he is directed to take steps that will bring the heel on each mark.

Precision in each exercise is insisted on by Mitchell, who says: "The exercises, from the simplest to the most complicated, must be performed accurately, with the idea always before both teacher and pupil that to do the prescribed movements correctly and exactly is the task—not just to do it. If the patient walks, he walks not to reach a certain spot, but to walk in a certain fashion. Individual teaching is absolutely required in the beginning. After the first lessons, and when the patient is once able to do a little work on his feet, he may join a class and find not only that the stimulus of competition is a help, but that his observation of the errors of others assists him to correct his own."

The exercises should not cause fatigue. As a rule, twice a day and not longer than from five to fifteen minutes at a time, and in the severer cases not longer than two or three minutes, should be the limit. Improvement is said to follow in every case, but the amount depends on the length of treatment rather than on the degree of incoordination. Several months are generally necessary if the patient is not to fall back into his old habits. Even the severest cases, if uncomplicated, give a good prognosis with persevering treatment. Some of Frenkel's patients, with complete loss of the power of standing or walking, had these faculties entirely restored after from six to twelve months of treatment. Orthopedic apparatus may be needed in some cases. Uibeleisen utilizes the buoyancy of water to help in the exercises, as described in THE JOURNAL, Jan. 14, 1911, page 162.

FIBROLYSIN IN OPHTHALMOLOGY

To the Editor:—1. With what success has fibrolysin been used in corneal ulcer?

2. What is the dosage used either as instillation into the conjunctival sac or as subcutaneous injection?

B. L. SCHUSTER, Port Huron, Mich.

ANSWER.—According to "New and Nonofficial Remedies" and Wood's "System of Ophthalmic Therapeutics," fibrolysin is the trade name for a sterile solution of thiosinamin and sodium salicylate, and contains about 15 per cent. of the double salt. It is used as a substitute for thiosinamin. As it readily decomposes on exposure to the air it is commonly marketed in ampullas (Merck), or in bottles containing one dose only, to be given subcutaneously. A hypodermic injection of this remedy is more quickly absorbed, causes less pain and is more efficacious than thiosinamin alone. The remedy is rarely or never used for ulcer of the cornea, but is almost invariably prescribed for the scars remaining after the ulcers have healed. Its effect on any of these lesions is of little account unless used hypodermically or subconjunctivally; even then the remedy is of doubtful utility. Brandenburg has also tried the preparation in the form of intramuscular injections in corneal opacity following keratitis scrofulosa, keratitis purulenta, keratitis trachomatosa, in chronic uveitis and chronic retrobulbar neuritis.

2. Pick has prescribed a subconjunctival injection of 0.5 c.c. of a solution of 2 gm. of thiosinamin in 20 gm. of water and 4 gm. of glycerin, corresponding to 0.45 gm. of fibrolysin (1/5 of an ampulla) once a week.

GALL-STONE FAKE

To the Editor:—Several months ago THE JOURNAL exposed a gall-stone fake, whereby the patient who took the "treatment" passed a quantity of "gall-stones" or, rather, "soap-stones." A person whom I know took a similar "treatment" and passed 125 soft gall-stones (some as large as hazel-nuts). One of my patients, who is suffering from acute gastritis, was requested to try the gall-stone remedy. I want to locate the article to show him how the fake works. If you can tell me the number of THE JOURNAL which contains this article I will be obliged to you. C. O. NELMS, M.D., Herscher, Ill.

ANSWER.—The "fake gall-stone trick" has been worked for some years by traveling fakers and more recently has been adapted to the "patent medicine" industry. In THE JOURNAL, Sept. 24, 1910, "Fruitola," one of the most widely advertised of the gall-stone cure fakes, was exposed, and this, doubtless, is the nostrum to which our correspondent refers. The analyses made by the Association's chemists indicated that Fruitola consisted essentially of anise-flavored olive oil and seidlitz powders.

GASOLINE FOR REMOVAL OF ADHESIVE PLASTER, ETC.

To the Editor:—Recent articles in THE JOURNAL make it a matter of conscience with me to announce that gasoline is the best solvent for the face of surgeon's adhesive plaster. The liquid should be freely applied with a wad of cotton. The plaster may then be removed without violence or depilation. So effectual is the solvent that the surgeon will not care whether the cementing material does or does not come away with the cloth. It is merely a matter of a few wads of cotton more or less.

In this connection, I wish to say that gasoline is an antiseptic and that it further commends itself by its power of removing machine-grease from injured fingers and of dissolving ointments at later dressings. Nothing in my office is so useful, with the sole exception of my ledger. Polished instruments, thoroughly dried, will not rust after receiving a dash of gasoline. When desired, one may use it as a solvent for paraffin and coat any instrument with a film. A few drops poured on the water in the wash-bowl will enormously increase the detergent power of soap and water and will prevent the deposit of smeary curds on the side of the bowl, even when hard water is used. A discreet use of it on the front of the doctor's coat and waistcoat will often exalt his personal pulchritude. Gasoline will clean up the bearings of the bicycle or centrifuge and will quickly remove all gum from the doctor's typewriter—or her writing-machine.

A liquid so inflammable should not be exposed in quantity. An ordinary oil-can is a fine dispensing apparatus, but a screw-cap bottle, such as the perfumers use for toilet waters, is much more elegant. I myself use a bottle that I got from my own wife—to avoid explosion. DAN MILLIKIN, M.D., Hamilton, Ohio.

To the Editor:—The articles of Drs. Beardsley and J. Scott Brown, in THE JOURNAL, January 28 and February 25, respectively, concerning the removal of adhesive plaster, are of general practical interest. The costliness of Dr. Beardsley's oil of wintergreen and the pain and friction required in Dr. Brown's method with ether cause me to suggest the use of gasoline for the removal of the plaster. For a number of years I have used gasoline in the following manner: Saturate a cotton sponge with gasoline and apply it directly to the posterior surface and the end of the adhesive plaster. This loosens the end effectively and allows it to be grasped by a pair of thumb forceps. Then, by gentle traction on the end of the plaster, it is lifted away from the surface, and by applying the cotton sponge at the junction of the skin and remaining plaster the plaster is easily and rapidly peeled off. If any of the adhesive material remains it is quickly dissolved and removed by gentle friction with the aforesaid sponge.

J. A. GANNON, M.D., Washington, D.C.

THE WORD APPENDICEALGIA

To the Editor:—Who was the author of the new word "appendicealgia?" Has anything been published on the subject? What are the symptoms of the disease? A. C. J.

ANSWER.—The word appears in Dorland's "Medical Dictionary," as also does the abbreviated form "appendalgia." We do not know its author. Both are merely terms for appendicular colic, and as such they are treated in practically all works on appendicitis.

THE BRACHIAL PLEXUS

To the Editor:—Does the second thoracic nerve have anything to do with the formation of the brachial plexus nerve normally?

L. S. GRIFFIN, M.D., St. Louis.

ANSWER.—Yes.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Feb. 25, 1911.

Norman, Seaton, M.R.C., on his relief from temporary duty at Fort Wingate, N. Mex., ordered to Fort Bliss, Texas, for temporary duty.

Farrow, Edgar J., M.R.C., left Fort Morgan, Ala., en route to Fort Sam Houston, Texas, for temporary duty.

Wolven, F. Homer, D.S., left Fort George Wright, Wash., en route to Boise Barracks, Idaho, for temporary duty.

Freeman, Paul L., captain, left Fort Riley, Kan., for temporary field duty in Texas.

Ferenbaugh, Thomas L., lieut., left Fort Des Moines, Iowa, for temporary duty in field in Texas.

Powell, William A., captain, ordered to the Presidio of San Francisco for duty.

Thomason, Harry D., captain, ordered to proceed at the proper time to Frankfort, Ky., for conference about Feb. 26, 1911, with the adjutant of Kentucky in connection with reorganization of the sanitary troops in that state.

Schlanser, A. E., lieut., left Walter Reed General Hospital, Takoma Park, D. C., en route to West Point, N. Y., for temporary duty.

Johnson, Thomas H., lieut., left Fort Baker, Cal., en route to Fort Barry, Cal., for temporary duty.

Dickenson, C. F., M.R.C., left Fort Barry, Cal., on ten days' leave of absence.

Pillsbury, Henry C., captain, left Jefferson Barracks, Mo., with recruits en route to Fort McDowell, Cal.

Phalen, James M., captain, left Columbus Barracks, Ohio, with recruits en route to Fort McDowell, Cal.

Allen, William H., lieut., left Fort Slocum, N. Y., with recruits en route to Fort McDowell, Cal.

Patterson, Edwin W., M.R.C., granted leave of absence for three months, with permission to go beyond the seas, to take effect on his relief from duty in the Philippines division.

Lynch, Charles, major, order directing him to proceed to the Philippine Islands for duty is revoked.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

OPTOMETRY EXAMINATION QUESTIONS

Since 1901, laws creating state boards for the examination of practitioners in "optometry" have been adopted in twenty-four states. These are: Minnesota (1901), California and North Dakota (1903), Oregon (1905), New Mexico (1906), Arizona, Montana, Idaho, Utah, Tennessee, Indiana and Nebraska (1907), New York, Vermont, West Virginia, North Carolina, Delaware, Maine, Washington, Iowa, Rhode Island, Kansas, Michigan and Florida (1909).

Many physicians are apparently indifferent to this invasion of the field of medicine, and regard these self-styled "optometrists" as merely spectacle fitters. As an evidence of the extent to which they are endeavoring to cover the entire realm of the diseases of the eye, the examination questions used by the boards in a number of states are quoted herewith. As will be seen, the questions relate, not only to the correction of errors of refraction, but to practically all diseases of the eye. The questions given are quoted verbatim from the examination papers.

California.—Explain the following: Aberration, Aniridia, Actinic, Steigmatism, Cyclophoria, Dacryoma, Erucleation, Epicanthus, Senopia, Epilation, Caruncle, Myosis, Mydriasis, Cycloplegia, Chromatism, Nyctalopia, Keratitis, Leucoma, Hordeolum, Anisometropia, Ontimetropea. Describe the dilator iris, its function and nerves. Name the principal arteries of the eye. State shortly what you know of cataract diagnosis, it's varieties, cause and methods of removal.

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Utah.—What is pterygium? trachoma? How would you detect cataract? What is it? What is nystagmus; anisometropia?

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Iowa.—What nerves supply the two muscles controlling the iris? Describe a cataract and tell what you know of the different kinds. What is keratitis? What is blepharitis? How does the ciliary muscle affect vision? How would paralysis of the fourth cranial nerve affect the eyes? How does the liver influence digestion? What are the functions of the thyroid gland?

Given a patient complaining of short periods of dimness of both near and distant vision, which are becoming more frequent, with occasional instants of complete darkness; these periods sometimes accompanied by pain in eyeball and orbital region; also states that during these periods halos are seen around the lamp or similar spots of light; that he has never worn glasses for distance, but that of late he has been compelled to change his reading glasses to higher and higher power at frequent intervals. On examination you discover a "hazy" appearance of the cornea, pupil dilated, and immobile or at least sluggish of response, and on pulsating the eyeball you discover an abnormally high tension, what would you diagnose this case to be?

What is the generally accepted theory as to its cause? What is meant by the term monocular diplopia, and what is usually indicated by it? Describe briefly arcus senilis. Define cataract, giving symptoms, and tests you use when you suspect its presence. Describe pterygium. What is a chalazion? What is a stye? What is trachoma? What is meant by scotoma?

Delaware.—Describe a cataract and tell what you know of the different kinds. What is blepharitis marginalis? Describe simple corneal ulcer and give the most conspicuous symptom. Name a disease of the eyes on account of which emigrants are refused admission to this country; give reason. Describe glaucoma and give the principal diagnostic features. What is hemniopa and its cause? What are the rods and cones and their function?

Rhode Island.—Describe cataract in general and some one particular kind fully. What is choroiditis, retinitis, iritis, conjunctivitis, blepharitis marginalis? Describe simple corneal ulcer and give the most conspicuous symptom. Describe glaucoma and give the principal diagnostic feature.

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Eighth Month—First Weekly Meeting

General Subject for the Month: Non-Inflammatory Diseases of the Uterus and Appendages

ANATOMY

UTERUS: Shape, size, position, important relations. Broad, round and uterosacral ligaments. Portions of uterus. Structure; serous, muscular and mucous coats. Attachments of vagina to cervix. Blood-vessels and nerves. Lymphatics, three groups.

FALLOPIAN TUBES: Position, portions, structure. Blood-supply. Broad ligament, structure, relations, contents.

OVARY: Shape, size, position, relations, ligaments. Structure and functions. Blood-vessels, nerves, lymphatics.

PELVIC FLOOR: Skin, superficial and deep fascias, levator ani, transverse perineal, ischiocavernosi and sphincter ani muscles. Functions and mechanism of pelvic floor.

DISPLACEMENTS OF THE UTERUS

ASCENT, descent, lateral, anterior and posterior, flexion and version.

PROLAPSE: Pathology: Degrees of prolapse, changes in uterus, in adjacent organs.
Diagnosis. Symptoms, physical examination.

ANTEFLEXION: Incidence, causes.
Symptoms. Dysmenorrhea, sterility, leukorrhea.
Treatment.

RETRODISPLACEMENTS, VERSION AND FLEXION

CAUSES: Injury to pelvic floor, subinvolution of uterus, too long on back after labor, overdistended bladder and rectum, dress, occupation, posture, chronic disease, etc.

the foot of the bed. In other instances, definite spaces are marked on the floor and he is directed to take steps that will bring the heel on each mark.

Precision in each exercise is insisted on by Mitchell, who says: "The exercises, from the simplest to the most complicated, must be performed accurately, with the idea always before both teacher and pupil that to do the prescribed movements correctly and exactly is the task—not just to do it. If the patient walks, he walks not to reach a certain spot, but to walk in a certain fashion. Individual teaching is absolutely required in the beginning. After the first lessons, and when the patient is once able to do a little work on his feet, he may join a class and find not only that the stimulus of competition is a help, but that his observation of the errors of others assists him to correct his own."

The exercises should not cause fatigue. As a rule, twice a day and not longer than from five to fifteen minutes at a time, and in the severer cases not longer than two or three minutes, should be the limit. Improvement is said to follow in every case, but the amount depends on the length of treatment rather than on the degree of incoordination. Several months are generally necessary if the patient is not to fall back into his old habits. Even the severest cases, if uncomplicated, give a good prognosis with persevering treatment. Some of Frenkel's patients, with complete loss of the power of standing or walking, had these faculties entirely restored after from six to twelve months of treatment. Orthopedic apparatus may be needed in some cases. Uibeleisen utilizes the buoyancy of water to help in the exercises, as described in THE JOURNAL, Jan. 14, 1911, page 162.

FIBROLYSIN IN OPHTHALMOLOGY

To the Editor:—1. With what success has fibrolysin been used in corneal ulcer?

2. What is the dosage used either as instillation into the conjunctival sac or as subcutaneous injection?

B. L. SCHUSTER, Port Huron, Mich.

ANSWER.—According to "New and Nonofficial Remedies" and Wood's "System of Ophthalmic Therapeutics," fibrolysin is the trade name for a sterile solution of thiosinamin and sodium salicylate, and contains about 15 per cent. of the double salt. It is used as a substitute for thiosinamin. As it readily decomposes on exposure to the air it is commonly marketed in ampullas (Merck), or in bottles containing one dose only, to be given subcutaneously. A hypodermic injection of this remedy is more quickly absorbed, causes less pain and is more efficacious than thiosinamin alone. The remedy is rarely or never used for ulcer of the cornea, but is almost invariably prescribed for the scars remaining after the ulcers have healed. Its effect on any of these lesions is of little account unless used hypodermically or subconjunctivally; even then the remedy is of doubtful utility. Brandenburg has also tried the preparation in the form of intramuscular injections in corneal opacity following keratitis scrofulosa, keratitis purulenta, keratitis trachomatosa, in chronic uveitis and chronic retrobulbar neuritis.

2. Pick has prescribed a subconjunctival injection of 0.5 c.c. of a solution of 2 gm. of thiosinamin in 20 gm. of water and 4 gm. of glycerin, corresponding to 0.45 gm. of fibrolysin (1/5 of an ampulla) once a week.

GALL-STONE FAKE

To the Editor:—Several months ago THE JOURNAL exposed a gall-stone fake, whereby the patient who took the "treatment" passed a quantity of "gall-stones" or, rather, "soap-stones." A person whom I know took a similar "treatment" and passed 125 soft gall-stones (some as large as hazel-nuts). One of my patients, who is suffering from acute gastritis, was requested to try the gall-stone remedy. I want to locate the article to show him how the fake works. If you can tell me the number of THE JOURNAL which contains this article I will be obliged to you. C. O. NELMS, M.D., Herscher, Ill.

ANSWER.—The "fake gall-stone trick" has been worked for some years by traveling fakers and more recently has been adapted to the "patent medicine" industry. In THE JOURNAL, Sept. 24, 1910, "Fruitola," one of the most widely advertised of the gall-stone cure fakes, was exposed, and this, doubtless, is the nostrum to which our correspondent refers. The analyses made by the Association's chemists indicated that Fruitola consisted essentially of anise-flavored olive oil and seidlitz powders.

GASOLINE FOR REMOVAL OF ADHESIVE PLASTER, ETC.

To the Editor:—Recent articles in THE JOURNAL make it a matter of conscience with me to announce that gasoline is the best solvent for the face of surgeon's adhesive plaster. The liquid should be freely applied with a wad of cotton. The plaster may then be removed without violence or depilation. So effectual is the solvent that the surgeon will not care whether the cementing material does or does not come away with the cloth. It is merely a matter of a few wads of cotton more or less.

In this connection, I wish to say that gasoline is an antiseptic and that it further commends itself by its power of removing machine-grease from injured fingers and of dissolving ointments at later dressings. Nothing in my office is so useful, with the sole exception of my ledger. Polished instruments, thoroughly dried, will not rust after receiving a dash of gasoline. When desired, one may use it as a solvent for paraffin and coat any instrument with a film. A few drops poured on the water in the wash-bowl will enormously increase the detergent power of soap and water and will prevent the deposit of smeary curds on the side of the bowl, even when hard water is used. A discreet use of it on the front of the doctor's coat and waistcoat will often exalt his personal pulchritude. Gasoline will clean up the bearings of the bicycle or centrifuge and will quickly remove all gum from the doctor's typewriter—or her writing-machine.

A liquid so inflammable should not be exposed in quantity. An ordinary oil-can is a fine dispensing apparatus, but a screw-cap bottle, such as the perfumers use for toilet waters, is much more elegant. I myself use a bottle that I got from my own wife—to avoid explosion. DAN MILLIKIN, M.D., Hamilton, Ohio.

To the Editor:—The articles of Drs. Beardsley and J. Scott Brown, in THE JOURNAL, January 28 and February 25, respectively, concerning the removal of adhesive plaster, are of general practical interest. The costliness of Dr. Beardsley's oil of wintergreen and the pain and friction required in Dr. Brown's method with ether cause me to suggest the use of gasoline for the removal of the plaster. For a number of years I have used gasoline in the following manner: Saturate a cotton sponge with gasoline and apply it directly to the posterior surface and the end of the adhesive plaster. This loosens the end effectively and allows it to be grasped by a pair of thumb forceps. Then, by gentle traction on the end of the plaster, it is lifted away from the surface, and by applying the cotton sponge at the junction of the skin and remaining plaster the plaster is easily and rapidly peeled off. If any of the adhesive material remains it is quickly dissolved and removed by gentle friction with the aforesaid sponge.

J. A. GANNON, M.D., Washington, D.C.

THE WORD APPENDICEALGIA

To the Editor:—Who was the author of the new word "appendicealgia?" Has anything been published on the subject? What are the symptoms of the disease? A. C. J.

ANSWER.—The word appears in Dorland's "Medical Dictionary," as also does the abbreviated form "appendalgia." We do not know its author. Both are merely terms for appendicular colic, and as such they are treated in practically all works on appendicitis.

THE BRACHIAL PLEXUS

To the Editor:—Does the second thoracic nerve have anything to do with the formation of the brachial plexus nerve normally?

L. S. GRIFFIN, M.D., St. Louis.

ANSWER.—Yes.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Feb. 25, 1911.

Norman, Seaton, M.R.C., on his relief from temporary duty at Fort Wingate, N. Mex., ordered to Fort Bliss, Texas, for temporary duty.

Farrow, Edgar J., M.R.C., left Fort Morgan, Ala., en route to Fort Sam Houston, Texas, for temporary duty.

Wolven, F. Homer, D.S., left Fort George Wright, Wash., en route to Boise Barracks, Idaho, for temporary duty.

Freeman, Paul L., captain, left Fort Riley, Kan., for temporary field duty in Texas.

Ferenbaugh, Thomas L., lieut., left Fort Des Moines, Iowa, for temporary duty in field in Texas.

Powell, William A., captain, ordered to the Presidio of San Francisco for duty.

Thomason, Harry D., captain, ordered to proceed at the proper time to Frankfort, Ky., for conference about Feb. 26, 1911, with the adjutant of Kentucky in connection with reorganization of the sanitary troops in that state.

Schlanser, A. E., lieut., left Walter Reed General Hospital, Takoma Park, D. C., en route to West Point, N. Y., for temporary duty.

Johnson, Thomas H., lieut., left Fort Baker, Cal., en route to Fort Barry, Cal., for temporary duty.

Dickenson, C. F., M.R.C., left Fort Barry, Cal., on ten days' leave of absence.

Pillsbury, Henry C., captain, left Jefferson Barracks, Mo., with recruits en route to Fort McDowell, Cal.

Phalen, James M., captain, left Columbus Barracks, Ohio, with recruits en route to Fort McDowell, Cal.

Allen, William H., lieut., left Fort Slocum, N. Y., with recruits en route to Fort McDowell, Cal.

Patterson, Edwin W., M.R.C., granted leave of absence for three months, with permission to go beyond the seas, to take effect on his relief from duty in the Philippines division.

Lynch, Charles, major, order directing him to proceed to the Philippine Islands for duty is revoked.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

OPTOMETRY EXAMINATION QUESTIONS

Since 1901, laws creating state boards for the examination of practitioners in "optometry" have been adopted in twenty-four states. These are: Minnesota (1901), California and North Dakota (1903), Oregon (1905), New Mexico (1906), Arizona, Montana, Idaho, Utah, Tennessee, Indiana and Nebraska (1907), New York, Vermont, West Virginia, North Carolina, Delaware, Maine, Washington, Iowa, Rhode Island, Kansas, Michigan and Florida (1909).

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UTERUS: Shape, size, position, important relations. Broad, round and uterosacral ligaments. Portions of uterus. Structure; serous, muscular and mucous coats. Attachments of vagina to cervix. Blood-vessels and nerves. Lymphatics, three groups.

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Diagnosis. Symptoms, physical examination.

ANTEFLEXION: Incidence, causes.
Symptoms. Dysmenorrhea, sterility, leukorrhea.
Treatment.

RETRODISPLACEMENTS, VERSION AND FLEXION

CAUSES: Injury to pelvic floor, subinvolution of uterus, too long on back after labor, overdistended bladder and rectum, dress, occupation, posture, chronic disease, etc.

SYMPTOMS: Backache, leukorrhea, headache, pelvic, rectal and bladder symptoms, menstrual disorders, nervous symptoms.

TREATMENT: Removal of cause. Replacement. Use of pessary and tampon. Operative treatment: Technic of shortening round ligaments, Montgomery, Barrett, Gilliam operations.

INVERSION OF THE UTERUS

Acute and chronic inversion. Symptoms. Treatment.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: Regular, City Hall, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Garde, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

MAINE: Portland, March 14-15. Sec., Dr. F. W. Searle, 806 Congress St.

MASSACHUSETTS: State House, Boston, March 14-16. Sec., Dr. Edwin B. Harvey, Room 159, State House.

WYOMING: Laramie, March 7-9. Sec., Dr. J. B. Tyrrell.

Illinois July and October Reports

Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the written examinations held at Chicago, July 20-22, and October 19-21, 1910. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75.

At the examination held July 20-22, the total number of candidates examined was 145 of whom 117 passed and 26 failed. Two candidates did not complete the examination. The following colleges were represented:

College	PASSED Year Grad.	Total No. Examined.
Denver and Gross College of Medicine	(1908)	1
Georgetown University	(1909)	1
George Washington University	(1909)	1
Bennett Medical College, Chicago	(1910)	10
Chicago College of Medicine and Surgery	(1910)	15
Hahnemann Medical College and Hospital, Chicago	(2, 1909) (2, 1910)	4
Hering Medical College	(1910)	1
Jenner Medical College	(1910)	9
Illinois Medical College	(1910)	2
Northwestern University Med. School	(1909) (8, 1910)	9
College of Physicians and Surgeons, Chicago	(1909) (16, 1910)	17
Reliance Medical College	(1910)	4
Rush Medical College	(1899) (1909) (11, 1910)	13
University of Louisville	(1910)	12
Tulane University of Louisiana	(1903)	1
University of Michigan, Homeopathic College	(1910)	1
Homeopathic Medical College of Missouri	(1908)	1
St. Louis College of Phys. and Surgs.	(1906) (4, 1910)	5
Barnes Medical College	(1910)	3
Jefferson Medical College	(1910)	3
Vanderbilt University	(1910)	1
McGill University, Quebec	(1910)	2
University of Athens, Greece	(1901)	1
FAILED		
University of Arkansas	(1909)	1
Bennett Medical College, Chicago	(1909) (2, 1910)	3
Chicago College of Medicine and Surgery	(1910)	2
College of Medicine and Surgery, Physio-Medical, Chicago	(1910)	1
Hering Medical College	(1910)	1
Illinois Medical College	(1910)	1
National Medical University, Chicago	(1909)	2
College of Physicians and Surgeons, Chicago	(1910)	2
Keokuk Medical College, College of Physicians and Surgeons	(1908)	1
Sioux City College of Medicine	(1906)	1
Hospital College of Medicine, Louisville	(1904)	1
Barnes Medical College	(1910)	2
St. Louis College of Physicians and Surgeons	(1906) (1908) (3, 1910)	5
Meharry Medical College	(1910)	2
University of Naples, Italy	(1901)	1

At the examination held October 19-21, the total number of candidates examined was 81, of whom 34 passed and 42 failed. Five candidates did not complete the examination. The following colleges were represented:

College	PASSED Year Grad.	Total No. Examined.
Bennett Medical College	(1910)	2
Chicago College of Medicine and Surgery	(1910)	3
College of Medicine and Surgery, Chicago	(1910)	1
Hahnemann Med. College and Hospital, Chicago	(1910)	1
Jenner Medical College, Chicago	(1910)	2
Illinois Medical College	(1910)	1
Northwestern University Medical School	(1910)	2
College of Physicians and Surgeons, Chicago	(1910)	9
Reliance Medical College	(1910)	2
Rush Medical College	(1910)	2
Indiana University	(1910)	1
University of Maryland	(1910)	1
Harvard Medical School	(1908)	1
Boston University	(1910)	1
St. Louis College of Physicians and Surgeons	(1910)	1
Washington University, St. Louis	(1903)	1
University of Buffalo	(1895)	1
Meharry Medical College	(1910)	1
University of Berlin, Germany	(1901)	1
FAILED		
University of Arkansas	(1910)	1
Bennett Medical College	(1909) (2, 1910)	3
Chicago Coll. of Medicine and Surgery	(1908) (2, 1910)	3
College of Med. and Surg., Chicago	(1908) (5, 1910)	6
Hering Medical College, Chicago	(1910)	1
Jenner Medical College	(1910)	2
Illinois Medical College	(1910)	2
National Medical University, Chicago	(1909)	2
College of Phys. and Surg., Chicago	(1909) (4, 1910)	5
Reliance Medical College	(1909)	2
Keokuk Medical College, College of Physicians and Surgeons	(1906)	1
Sioux City College of Medicine	(1906)	1
Hospital Medical College, Louisville	(1904)	1
Louisville and Hospital Medical College	(1908)	1
Barnes Medical College	(1903) (1907) (3, 1910)	5
St. Louis College of Physicians and Surgeons	(1907) (1908) (2, 1910)	4
St. Louis University	(1907)	1
Meharry Medical College	(1910)	1

Alabama January Report

Dr. W. H. Sanders, Chairman of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, January 9-12, 1911. The number of subjects examined in was 10; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 42, of whom 18 passed and 24 failed. The following colleges were represented:

College	PASSED Year Grad.	Total No. Examined.
University of Alabama	(1910)	5
Birmingham Medical College	(1910)	2
Atlanta College of Physicians and Surgeons	(1910)	1
Tulane University of Louisiana	(1909) (1910)	2
Tufts College Medical School	(1908)	1
University of Michigan, Coll. of Med. and Surg.	(1909)	1
Leonard Medical School	(1910)	1
Jefferson Medical College	(1904) (1909)	2
Medical College of South Carolina	(1906)	1
University of Nashville	(1909) (1910)	2
FAILED		
University of Alabama	(2, 1909) (7, 1910)	9
Birmingham Medical College	(1910)	2
Atlanta College of Physicians and Surgeons	(1910)	2
Atlanta School of Medicine	(1909)	1
Louisville Medical College	(1907)	1
Tulane University of Louisiana	(1910)	2
Universities of Nashville and Tennessee	(1910)	1
Memphis Hospital Medical College. (*)	(1908) (2, 1910)	4
University of Tennessee	(1908)	2

* No year of graduation given.

New Hampshire January Report

Mr. H. C. Morrison, regent of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, Jan. 3-4, 1911. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 8, of whom 5 passed and 3 failed. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
Maryland Medical College	(1908)	75
Harvard Medical School	(1908)	81
Laval University, Quebec	(1909)	76
University of Athens, Greece	(1901)	75
University of Naples, Italy	(1906)	82
FAILED		
Baltimore Medical College	(1909)	60
Dartmouth Medical College	(1896)	61
University of Athens, Greece	(1903)	55

Book Notices

PELLAGRA. By Dr. A. Marie, Physician to the Asylums, Department of the Seine, Paris, France. With Introductory Notes by Professor Lombroso. Authorized Translation from the French by C. H. Lavinder, M.D., Passed Assistant Surgeon U. S. P. H. and M.-H. Service, and J. W. Babcock, M.D., Physician and Superintendent State Hospital for the Insane, Columbia, S. C. Cloth. Price, $2.50. Pp. 434, with illustrations. Columbia: The State Co., 1910.

The sociologic and economic importance of pellagra and the still unsolved mystery of its etiology are sufficient to ensure a welcome to any work presenting a good review of the subject. The comparative newness of the subject to the profession in the United States makes the preparation of such a book an unusually difficult task for an American physician. The authors, therefore, decided to present to English readers an authorized translation of the standard work of Marie, adapting it to American conditions by extensive additions and explanations. They were fortunate in securing the friendly interest of Lombroso, who shortly before his death wrote a preface for the work. The work of Marie is essentially an abbreviation of the larger work of Lombroso, so that the translators, in order to give a wider view of the etiologic theories, have introduced an account of the views of the antizeists. A chapter on symptomatology is also the work of the translators, so that the contributions to this work from their hands form an important feature of the book. The views on etiology are primarily those of Lombroso and connect the disease in some way with spoiled maize. The discussion of prophylaxis follows the same course as a necessary corollary. In this respect the European origin of the book necessitates a certain lack of adaptability to American conditions. The account of European varieties of maize and the methods of culture are of minor interest to the American farmer and sanitarian. The problems in this country concern more particularly the harvesting of unripe corn and the transportation of damaged or adulterated meal.

The authors give the conclusions and suggestions of Alsberg on the relations of corn culture in the United States to pellagra, but further study of this subject would be desirable. The account of symptomatology, diagnosis, prognosis and treatment is sufficiently complete. Two bibliographies, one English and the other foreign are appended. These are arranged chronologically and show the very considerably increased interest in the subject in the last few years, especially in the United States. The illustrations are mostly pictures of pellagrins, mostly Americans.

In general, the work may be unhesitatingly commended as a good presentation of this important subject.

THE PRACTICE OF SURGERY. By James G. Mumford, M.D., Visiting Surgeon to the Massachusetts General Hospital. Cloth. Price, $7 net. Pp. 1015, with 682 illustrations. Philadelphia: W. B. Saunders Co., 1910.

This book is novel in the manner of its conception and in being a text-book for the graduate who has surgical aspirations and not for the student. It is a text-book on clinical surgery. The principles of surgery are not considered, and preliminary training in pathology, bacteriology and the principles of surgery is presumed. Mumford narrates his experiences with surgical operations extending over a considerable number of years, describing what, in his opinion, are the best procedures to adopt for a given case. Useless gossip and verbose descriptions of every known procedure, good, bad or indifferent, are wisely omitted. The book cannot fail to prove really useful to anyone who is looking for light in this field.

Surgical diseases are taken up in the order of their interest, importance and frequency, the sequence followed being, first, appendicitis; then surgical diseases of the abdomen and its contents, of female organs of generation, of the genito-urinary organs, of the chest, face and neck, of the head and spine; and minor surgery with diseases of structure. In the treatment of appendicitis the author prefers the muscle-splitting operation; he advocates removing the appendix (after the abdomen is opened for other reasons) if there is cause to suspect that it may become involved through the subsequent spread of peritoneal inflammation and the formation of adhesions about it. This is one of the few instances in which the author has allowed himself to indulge in an excursion into the field of debatable problems. Controversial points, such as the relative merits of cholecystostomy and cholecystectomy, are discussed briefly but pointedly, and the reader receives practical, dependable information on the subject.

One of the especially good features of the book is that the general cardinal principles for operation—gall-bladder operations, for instance—are stated, and then the special indications for performing a particular operation—as cholecystostomy or cholecystectomy—are given. The author has displayed unusually good judgment in his selection of operations. Every detail of surgical progress has been noted, applied, accepted if good and rejected if worthless.

The illustrations are excellent, numerous and helpful; they are elucidating and not confusing.

THE DISEASES OF INFANTS AND CHILDREN. By Edmund Cautley, M.D., Cantab., Senior Physician to the Belgrave Hospital for Children. Cloth. Price, $7 net. Pp. 1042. New York: Paul B. Hoeber, 69 East 59th Street, 1910.

Many new books on diseases of children have appeared in the last few years, and English writers have made three notable contributions. The books of Thompson and of Still made no attempt at completeness; they dealt at great length with things in which the authors were especially interested, and entirely passed over equally important subjects. Thus, while they are of value to the practicing physician, they cannot be considered as text-books. Cautley felt that "a new, systematic and up-to-date book on the subject was required," and the present volume is the result. This book is distinctly a British product. The British pediatricians are greatest as clinicians; they keep us constantly at the bedside rather than in the laboratory, but in spite of this reversal of the present tendency, we recommend this book as a text-book on diseases of children, both to the practicing physician and to the student. It is a marvel of completeness and thoroughness; the style is clear and forcible; the arrangement is excellent and the matter is strictly up to date, containing, for example, references to Flexner and Lewis' latest work on poliomyelitis. One marvels how the author has been able to keep his mind wholly uninfluenced by the epoch-making work that has been done recently in Germany on the subject of infant-feeding, but this peculiarity is shared by all other English and most American writers. Throughout the book one is constantly impressed with its completeness and with the systematic arrangement of the subjects. Thus at the end of the book we find three chapters on the ear, the eye, and the skin in childhood. It would be a pleasure to speak in detail of the chapter on nervous and mental diseases, which covers nearly 200 pages, and of many other equally valuable portions, but space will not permit. The author does not believe in pictures—"the kindergarten method of teaching," as he calls it—and so none appears in the book. The binding and the typographic appearance are all that could be desired.

DISEASES OF THE HEART AND AORTA. By Arthur D. Hirschfelder, M.D., Associate in Medicine, Johns Hopkins University. With an Introductory Note by Lewellys F. Barker, M.D., Professor of Medicine, Johns Hopkins University. Cloth. Price, $6. Pp. 632, with 329 illustrations. Philadelphia: J. B. Lippincott Co. (1910).

This volume is destined to become a valuable reference work for the practitioner and a more familiar and necessary companion to the teacher of internal medicine. A cursory comparison of this book with Samson's "Diseases of the Heart and Aorta," written twenty years ago, is instructive. In the older treatise symptomatology received more attention, and, of the methods of examination, auscultation and percussion were strongly emphasized. The sphygmograph was expounded at great length and an importance attached to its arterial tracings that is no longer conceded. Turning from the old to the present volume we note the dominant influence of physiologic studies, including the results of experimental observation. The arterial tracings have been replaced by simultaneous tracings of heart, artery and vein by which alterations and irregularities of cardiac rhythm can be definitely analyzed. The arterial sphygmomanometer has developed a great field of knowledge. The *x*-ray has given a clear photograph of heart and aorta. The discovery of the bundles of His has revealed many of the secrets of arrhythmia. The electrocardiagram has made its debut and promises well. The author has written a discriminating chapter on drug

treatment and has successfully condensed the methods and merits of gymnastics and hydrotherapy. A chapter on the effect of anesthetics on the heart and circulation and on the choice of anesthetics would be a desirable addition. The arrangement of the contents is sometimes difficult to follow and the inclusion of case reports is a doubtful asset. But on the whole the book represents one of the most solid contributions of recent years to medical literature.

A MANUAL OF NURSING. By Margaret Frances Donahoe, Formerly Superintendent of Nurses and Principal of Training School, Philadelphia General Hospital. Cloth. Price, $2 net. Pp. 489, with 52 illustrations. New York: D. Appleton & Co., 1910.

This manual takes the nurse through the whole course of her hospital training and makes the application of the knowledge thus acquired to her private work. The author, being herself a nurse and for many years a superintendent of nurses, has overlooked little that should be incorporated in such a book. Anatomy is not considered but diseases and their symptoms are described simply, so that the nurse may have a sufficient understanding of their nature to assist physicians. Critical symptoms or turns in the patient's condition are described, and what to do in emergencies so that the nurse is forearmed as well as forewarned in regard to exigencies. The nurse's point of view is the one constantly kept in mind, and the book, therefore, has not the fault of some books on nursing written by physicians, which enter too deeply into matters that belong properly in the province of the physician and not in that of the nurse. The author's style is simple and concise, and easily understood by the beginner. The manual is a good one.

PRAKTISCHE KINDERHEILKUNDE IN 36 VORLESUNGEN FÜR STUDIERENDE UND AERZTE. Von Dr. M. Kassowitz in Wien. Paper. Price, 18 marks. Pp. 653, with illustrations. Berlin: Julius Springer, 1910.

This book is in the form of a series of thirty-six lectures. Although not a complete treatise, it covers the more important subjects admirably with perhaps one exception, that of the gastro-intestinal diseases, which are all described in a single chapter. The book is of especial value since it represents the author's personal experiences with all of the conditions described, and one feels that it is his text-book, his point of view, his therapy, and not a mere compilation of the theories and practices of other authors.

The chapters on rickets are good. Kassowitz more than any other writer has been the advocate of phosphorus in the treatment of rickets, and goes into the subject, perhaps even to greater length than necessary. The four lectures devoted to rachitis and related conditions give one a good insight into the complex question of the relationship of rachitis and tetany, splenic anemia, etc. The chapter on congenital syphilis is also very instructive. Taken as a whole, the book is a valuable addition to pediatric literature.

THE CARE AND TRAINING OF CHILDREN. By Le Grand Kerr, M.D., Author of "Diseases of Children," etc. Cloth. Price, 75 cents net. Pp. 233. New York: Funk & Wagnalls Co., 1910.

The book deals with children after the age of infancy on to adolescence. The author speaks not only as a physician, but also from the experience of a parent who has given the subject careful study and attention, so that matters pertaining to the physical welfare of the child are entered into, such as clothing, diet, bathing, sleep, the bowels and teeth, and the lighting, heating, ventilation of living-rooms, education, parental relations, government, punishment, moral training, amusements, literature, friends, etc., and the important questions of sex enlightenment and the matter of evil habits are discussed in a practical, common-sense way. The book should be helpful to parents in the training of children.

DIÄTETIK INNERER ERKRANKUNGEN ZUM PRAKTISCHEN GEBRAUCHE FÜR AERZTE UND STUDIERENDE. Von Dr. Theodor Brugsch. Paper. Price, 4.80 marks. Pp. 245. Berlin: Julius Springer, 1911.

The author of this little work avoids theoretic discussions, and after a brief account of the physiology of nutrition enters at once on the description of the dietetic treatment of the various forms of disease. The pathology is briefly considered and the treatment is described in such a way as to give a clear statement of the general principles and at the same time sufficient detail for the practical guidance of physicians acquainted with German.

Medicolegal

Admissibility in Evidence of Physician's Account Books—Corroboration in Action Against Administrator

The Supreme Court of New Mexico affirms a judgment for the plaintiff in the case of Radcliffe vs. Chavez (110 Pac. R. 699), an action by a physician, against an administrator, on a claim for services. The court says that the testimony showed that the initial memorandum of professional visits was in two physicians' pocket day-books, which were received in evidence, but, while recording all the visits, they failed after a certain date to record the charges for such visits. However, two other books, called ledgers, might be classed as books of original entry and be considered admissible in evidence to the extent that the entries in them were original entries, if otherwise competent under the statute.

With reference to a statutory provision that the books of account of any merchant, physician, or other person doing a regular business and keeping daily entries thereof may be admitted in evidence as proof of such accounts on condition that he kept no clerk, or else the clerk is dead or inaccessible, on proof, by his customers, that he usually kept correct books, etc., the court holds that the fact that a physician's wife from time to time made entries in such books from his dictation did not constitute her a clerk so as to render the books inadmissible. The work "clerk," as used in the statute, implies more than a mere amanuensis. It means one having knowledge of the business so as to be able of his own knowledge to testify as to it. And as to proof by customers, it is sufficient if it be shown by them that during a period of years they have always found their accounts as tendered correct, coupled with testimony that such accounts were taken from the books in question; it not being essential that the customers shall have actually examined such books and compared their accounts with them. Where, therefore, as in this case, two patients come in and testify that their accounts as presented were uniformly correct, and where it is shown that such accounts were drawn from the books in question, the law infers from the treatment of the two a like treatment of the remainder, and considers the verity of the books established.

Then, books of account shown to conform to the requirements of the statute referred to are admissible in evidence, and, when so admitted in a suit against an administrator, may constitute "other material evidence" corroborating the claimant, as required by statute in an action against an administrator.

But the claimant went further in this case. His account was composed of several classes of items: (1) 167 visits for which $5 a visit was charged; (2) extra charges for some sixteen ordinary examinations of urine at $5 each; (3) five microscopic examinations necessitating trips to Albuquerque for which extra charges of $25 each were made; (4) washing out bladder six times at $10 each; (5) for limiting practice in order to stay near patient sixty-nine days at $5 per day; (6) for all-day and all-night service on the date of the patient's death $50. The plaintiff testified to the correctness of all of these charges, but, being of six separate classes, corroboration of all of one would not be sufficient to sustain the other.

Besides the claimant's books of accounts which, as has already been seen, were properly received in his behalf, and, when so received, were material evidence corroborating his testimony, the testimony of his wife showed that he had attended this patient as physician a number of times during the period charged for. Another physician testified to a knowledge of the case and to the necessity for examination of the urine, both ordinary and microscopic, to the fact that six of the former had been made with his help and to the reasonableness of the charges made therefor, to the presence of the claimant there night and day of the date of the last charge, to the fact that his presence was for the purpose of keeping the patient alive until some one who had been notified could arrive, and to the reasonableness of the charge of $50 therefor, to his knowledge of the fact that the claimant had for a considerable period previously to the death of this patient limited his practice to him, and declined outside prac-

tice, and that a charge of $5 a day was a reasonable charge for such limitation. He further testified that $2 was a reasonable price for the ordinary visit of a physician. A woman testified that she was nurse in attendance on the patient for two months and eleven days before his death, and that during that period, on the patient's request, the claimant attended, making sometimes two and sometimes three visits a day and sometimes at night, and that from about the beginning of such period the patient asked the claimant to be in attendance on him constantly during the time until he either died or got well. This last was corroborative of the claimant's testimony to the effect that he had on the special request of the patient limited his practice so as to be near him during the last sixty-nine days of his illness. The court deems this testimony, in connection with the books sufficient to corroborate and sustain all six of the classes of items above mentioned.

Testimony of a witness as to seeing the claimant's buggy stop at the patient's house was competent evidence as corroborative of the claim that he visited the patient professionally.

Practicing Medicine—Assignee of Claim of Unauthorized Practitioner

The Court of Civil Appeals of Texas affirms a judgment for the defendant in the case of Barnes vs. Sparks (131 S. W. R., 610), where he was sued on a note for $100 dated in January, 1905, and pleaded that the note was given for professional services rendered and to be rendered by one Dr. Dunnagan as a physician, and alleged that the latter was not at the time the note was given authorized to practice medicine in Hamilton county, where the note was executed, because he had not caused his license to practice medicine to be recorded in that county.

The defendant testified that he was afflicted with asthma and that Dr. Dunnagan came to his residence in Hamilton county, represented himself as a physician and agreed to cure him for $100; that he accepted the offer and executed to Dr. Dunnagan the note sued on; that immediately after the execution and delivery of the note Dr. Dunnagan gave him a dose of medicine, and that he thereafter received other medicine in pursuance of Dr. Dunnagan's contract, and did not know who sent it, unless it was Dr. Dunnagan. He also admitted that at the time he executed the note he signed a written contract with a medical institute, which was signed by the latter by said Dunnagan as diagnostician. Dr. Dunnagan testified that he did not prescribe for the defendant or give him any medicine; that he examined him, diagnosed his case; that he was prescribed for by a physician of the institute at Dallas, and that the medicine was furnished by that institute. The court thinks that the defendant's testimony warranted the conclusion that Dr. Dunnagan was practicing medicine on the occasion in question, and that at least part of the consideration of the note was for professional services rendered by him at that time.

Furthermore, the court overrules the contention that the laws of Texas do not make it unlawful for an assignee to maintain an action to recover for professional services of a physician prohibited by the statute from practicing. It holds that such defense is available against an assignee, unless such assignee is entitled to protection as an innocent purchaser and bona fide holder.

Refusal to Submit to Treatment Must be Unreasonable to Affect Verdict

The Supreme Court of Appeals of Virginia, in Roanoke Railway & Electric Co. vs. Sterrett (68 S. E. R., 998), a personal injury case brought by the latter party, holds correct an instruction which told the jury that if they believed from the evidence that the plaintiff unreasonably refused to submit to the treatment of physicians, or unreasonably refused to follow their instructions in regard to her injuries, and that in consequence of her refusal so to do her injury was aggravated and increased, then she could not recover damages to the extent that her conduct resulted in damage to her, and which might have been avoided and prevented by submitting to the treatment and following the directions of her physicians. The court says that objection was made to the interpolation of the word "unreasonably" in the instruction. The physicians alluded to were the surgeons of the defendant company employed by it to attend the plaintiff. She had also engaged physicians of her own selection, and by the instruction as originally offered was held bound at the risk of curtailing her recovery of damages to submit to the treatment prescribed by the defendant's surgeons whether reasonable or unreasonable. The amended instruction correctly told the jury that the plaintiff's right of recovery could be affected only by her unreasonably refusing to submit to the treatment or follow the instructions of physicians.

One Registration Only Required

The Court of Appeals of Georgia holds, in Jones vs. State (69 S. E. R. 315), that an indictment or accusation, charging a violation of section 1479 of the Political Code of Georgia of 1895, in that the defendant did practice medicine without registering in the office of the clerk of the superior court, is fatally defective, if it fails affirmatively to allege that the county in which he is charged with having practiced medicine without registering is the county wherein he resided. The law requires only one registration by a practitioner of medicine before he commences to practice medicine in Georgia, and that registration is required to be made in the office of the clerk of the superior court of the county wherein the practitioner resides.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

February 18

1 *Proper Management of Foundlings and Neglected Infants. H. D. Chapin, New York.
2 Syphilis and the Nervous System, with Remarks on the Wassermann Test and Salvarsan. W. M. Leszynsky, New York.
3 *Primary Sterility in Women. A. J. Rongy, New York.
4 Epidemic Poliomyelitis. E. E. Mayer, Pittsburg.
5 A Theory of the Etiology of Trachoma. D. S. Kanstoroom.
6 An Improvement in Audiometers. F. A. Faught, Philadelphia.

1. **Proper Management of Neglected Children.**—The plan of work followed by the Speedwell Society of Morristown, N. J., is described by Chapin; the infants are boarded out under supervision of visiting nurses. He shows that if the plan could be carried out generally in the place of institutional work for feeble, neglected babies, a large majority of them would be saved. No capital is required to be tied up in a large building or plant. The plan has proved to be economically sound as well as practically efficient.

3. **Primary Sterility in Women.**—The observations and conclusions arrived at in Rongy's paper are based on an analysis of 120 patients who presented themselves for treatment for primary sterility during the past ten years. Only those cases are included in which both husband and wife were examined. In eight patients there was sterility in either a brother or a sister. Three of these patients presented a few symptoms that pointed to some congenital defect of the genital organs. The husbands of these patients had active and living spermatozoa. Nearly 85 per cent. of the women suffered from dysmenorrhea, particularly during the first two days, a fact which goes to prove that the pain was not merely due to mechanical obstruction, but that some derangement of the genital tract, most probably of inflammatory origin, was present, for were it only of mechanical origin the pain would have ceased as soon as the full flow was established.

Most of the patients attended to their housework. Two were teaching school, six had millinery shops, eight divided their time between house work and small stores they owned, two were stenographers, one a dentist. Prior to marriage the majority of the patients had been engaged in sedentary occupations in close quarters and for prolonged hours, were rather anemic, and not in a robust state of health. Fifteen were

XUM

under 20 at the time of marriage, fifty-three between 20 and 25, thirty-eight between 25 and 30, seven between 30 and 35, four between 35 and 40 and one over 40. This is the proper ratio of the ages and therefore has no special significance. While some authors state that the marriages of near relations are more likely to be barren, in Rongy's experience this is not the case. Nine patients practiced masturbation daily from about the age of 16 until they married. Two continued the practice after marriage, stopping during the menstrual flow only. This continued practice resulted in complete sexual anesthesia in seven patients. In the presence of vaginismus sterility is the rule. Dyspareunia is usually a very prominent symptom in sterility. Thirty-two of the patients suffered from it.

In the 120 patients who came under Rongy's observation for the treatment of sterility he found that eighty-five, or 82 per cent. of the husbands admitted having been treated for gonorrhea for a period ranging from six weeks to two years. Eighteen had double epididymitis, with absolute sterility; twenty-one had single epididymitis, with absolute sterility in nine instances; nineteen gave a history of prostatitis and seminal vesiculitis; six of whom were operated on for stricture of the urethra, and three of whom suffered from azoospermia; the remaining twenty-seven evidently had anterior urethritis only, and in all spermatozoa were found. Three patients suffered from varicocele. In one patient the removal of this cured sterility of six year's standing. All the patients had azoospermia before the operation. Spermatozoa were found in all three cases three weeks after the operation. A small proportion of husbands suffer from azoospermia and oligospermia, which cannot be accounted for pathologically, and of necessity are classified as functional disturbances only. Closer inquiry brings out the fact that usually these patients have been excessively masturbating for a long period of time, with the result that the glandular structure of the testicles cannot supply the demand made upon them. Absolute impotence was found in three patients, two as the result of organic specific disease, one as the result of excessive masturbation. It is absolutely certain, says Rongy, that nearly 60 per cent. of women who suffer from primary sterility give evidence of gonorrheal infection. Next to the inflammatory processes the various displacements of the corpus and cervix uteri are the most important etiologic factors in primary sterility.

New York Medical Journal

February 18

7 Nature of Neurasthenia and Acute Insanity. C. P. Noble, Philadelphia.
8 Twilight Talks with the Doctor. G. F. Butler, Chicago.
9 Phrenology and Its Founder: The Claims of Franz Joseph Gall on the Homage of Scientific Posterity. J. Knott, Dublin.
10 Subphrenic Abscess. H. Roth, New York.
11 *The Putrefactive Products of the Intestinal Canal as Etiologic Factors in Certain Forms of Neuralgias. J. Funke, Atlanta, Ga.
12 Postdiphtheritic Paralysis of Accommodation. J. Clothier, Philadelphia.
13 Simple Technic for Preparing Salvarsan in Oily Suspension. A. J. Hart, New York.
14 Origin of Cancer and Its Control. W. McDowell, Seattle, Wash.

11. **Intestinal Putrefaction.**—The conclusions to be drawn from Funke's paper are that a limited number of cases of neuralgia are due to putrefaction products, that these neuralgias are not due to the indican, that the mere presence of indican does not signify that a disease exists, and that it is only when the precursors of this substance are not oxidized to indican that disease results.

Boston Medical and Surgical Journal

February 16

15 The Aims and Possibilities of Neurologic Hospitals. P. Bailey, New York.
16 The New Neurologic Service at the Boston City Hospital. Its First Year's Work. P. C. Knapp, Boston.
17 The Youthful Psychopath. J. W. Courtney, Boston.
18 *Clinico-Pathologic Data on Bladder Tumors. L. Davis, Boston.
19 *Transperitoneal and Suprapubic Approach to Tumors of the Bladder. C. L. Scudder, Boston.
20 *Present Status of Intravesical Operations for Tumors of the Bladder. H. Binney, Boston.
21 Examination of the Nose and Throat in Relation to General Diagnosis: Results in Asthma Following Nasal Operation. H. Z. Giffin, Rochester, Minn.

18. **Data on Bladder Tumors.**—In only twenty-eight of forty-one cases of tumors of the bladder collected from the records of the Massachusetts General Hospital by Davis were microscopic examinations of the specimens recorded. Twenty-five belonged to the epithelial group, two were sarcomata, one was a myoma—showing a great preponderance of epithelial tumors. Seventeen of the specimens of epithelial tumors which had been preserved were personally studied; six of these showed satisfactory evidence of epithelial infiltration of the bladder wall and were classed as carcinomata; eleven or nearly two-thirds, were regarded as papillomata. Thirty-seven patients were operated on; in nine the operation resulted fatally within a month, giving an operative mortality of 25 per cent. In none of the malignant cases was a radical operation, as it is now understood, attempted, but merely such palliative measures as curettage, cauterization and partial removal resorted to, with the result that death from the disease occurred in every case within six months.

Of the twenty-eight patients who survived the operation, twenty-six were traced. Fourteen, or just 50 per cent., died of the disease, one of these surviving for five years in spite of repeated recurrences before finally succumbing. Twelve patients, including those who died of other diseases, had no recurrence so far as could be learned. Nine are known to have survived the operation one year. Seven survived the operation two years. Five survived the operation eight years. Three of the latter died of other diseases, leaving two patients living and well at the time of the report, respectively eight and ten years after operation. Of the five patients who survived for eight years, in only three were there pathologic reports on the specimens removed; one was a myoma, two were papillomata. Of the eight cases of papillomata in which the specimens were personally studied by Davis, one patient died as the direct result of the operation, one died of intercurrent disease eighteen months later without evidence of recurrence, one died two months after secondary operation for recurrence, one five years later of recurrence. One patient reported perfect health one year after operation, but has not been heard from since. One patient cannot be traced; one patient is well eight years after operation. One patient operated on in 1892, and again in 1897 for recurrence, has remained well up to the present time, thirteen years since the second operation. Davis has operated on fifteen patients. Nine had papillomata. Three were cases of cancer of the nodular, infiltrating kind. There was no operative mortality in these fifteen cases. Transperitoneal cystotomy was done in five cases, and simple suprapubic cystotomy in ten.

19. **Transperitoneal and Suprapubic Approach to Tumors of the Bladder.**—Scudder finds that, practically speaking, all tumors of the bladder cause death of the patient sooner or later. The supposedly benign papilloma causes death by hemorrhage or pyelonephritis. All so-called benign tumors are potentially malignant. A papilloma which shows no sign of malignancy may become malignant. If the operative deaths and the rapid recurrences of bladder tumors are combined under the one head of operative failures, these failures have occurred in 29 per cent. of the so-called benign tumors and in 46 per cent. of the cases of carcinoma. Of the urethral operations for papilloma, only 28 per cent. of the patients remained cured more than one year. Of the partial resections, 37.5 per cent. of the patients remained well more than one year. Of fifty-three patients with papilloma operated on through the urethra or suprapubically, or by partial resection, nineteen had recurrence. The statistics of Nitze in 1901 and 1905 are not corroborated by detailed reports of the cases and Scudder regards them as unusually fortunate results. In view of the above facts pointing to the great malignancy of papilloma of the bladder, and because of the poor surgical results that hitherto have been obtained by operative treatment, Scudder believes that we should regard, from an operative standpoint, all papillomata of the bladder as potentially malignant, and that they should be treated as if they were malignant growths, whether there are evidences of malignancy in any individual case or not. Certain of the small, apparently benign papillomata may safely be removed by the suprapubic method, but should be removed even with this

approach by a good margin of excised, healthy tissue. The transperitoneal approach to the bladder will enable the surgeon to attack successfully cases of malignant tumor of the bladder which, without this approach, might be forced to a more dangerous extraperitoneal cystectomy.

20. **Intravesical Operations for Tumors of the Bladder.**—According to Binney, the published results of intravesical operations do not, at present, warrant the adoption of the method for the removal of primary growths, except in cases of very small tumors or in patients in whom a suprapubic cystotomy under an anesthetic is contra-indicated. In cases of repeated recurrences after suprapubic operations, the method is to be recommended over the performance of frequent suprapubic operations.

American Medicine, Burlington, Vt.

January

22 The Physician in Court. L. R. Graham, New York.
23 Indican from the Standpoint of the General Practitioner. H. R. Harrower, Chicago.
24 General Anesthesia. A. M. Hellman, New York.
25 Memorial Address of Dr. Abram Brothers. R. Abrahams, New York.
26 Acute Labyrinthine Suppuration. O. Glogau, New York.
27 Four Cases of Cesarean Section. A. J. Rongy, New York.
28 Pellagra in New Mexico. D. H. Galloway, Roswell, N. Mex.
29 Hernia of the Lung, with Report of a Case of Spontaneous Hernia of the Right Lung. E. Adams, New York.

Philippine Journal of Science, Manila

October

30 *Tolerance for Alkalies in Asiatic Cholera. A. W. Sellards, Manila.
31 Effect of Concentration of Solution in Collapse in Asiatic Cholera. A. J. McLaughlin and A. W. Sellards, Manila.
32 *Chemical Composition of Blood in Asiatic Cholera. H. Aron, Manila.
33 Cholera and Cholera-Like Vibrios Encountered in the Philippines. A. J. McLaughlin and E. R. Whitmore, Manila.
34 *Specific Cure of Yaws with Salvarsan. R. P. Strong, Manila.

30. **Tolerance for Alkalies in Asiatic Cholera.**—The most important findings reported by Sellards are the tolerance for alkalies and the change in the course of the disease. This tolerance, he says, may be dependent either on the cholera infection, or on the accompanying nephritis; apparently it is related more closely to the uremia than to the enteritis. The condition will be of more general interest if it proves to be present in uremia from other causes than if it is specific for cholera. Examination of the urine in cholera showed an almost constant increase in the excretion of ammonia. Cholera patients showed a definite tolerance of alkalies, a considerable excess of sodium bicarbonate being required to render the urine alkaline as compared with normal individuals. Within certain limits, the administration of alkalies not only failed to render the urine alkaline, but the acidity was even increased, as measured by titration. Following the injection of alkalies, there was sometimes a sudden and marked increase in the excretion of urea. The early administration of alkalies practically eliminated death from uremia.

The choice of alkali for treatment may vary somewhat in the different stages of cholera. The chief advantage of the normal carbonate would depend on its ability to absorb carbon dioxid, but apparently few deaths occur primarily from failure of the internal respiration. Sodium acetate may have some advantages, especially for the stage of collapse. As much as 80 grams within twenty-four hours have been injected, but perhaps this amount is slightly excessive in certain cases. As a general routine, sodium bicarbonate has been the most effective of the three salts. Its administration in collapse has several advantages and, in selected cases, concentrations of from 1 to 1.5 per cent. may be used. A weaker solution would probably be chosen which would be suitable for routine use in all cases of collapse. Early in the stage of reaction, as much as 60 gm. may be given within twenty-four hours. The most important indication for discontinuing its administration is the development of muscular cramps or twitchings. These symptoms may appear, although the urine remains acid, and may be considered as a reaction to the alkali. Several cases in which excessive amounts of alkali were tolerated without the appearance of this symptom terminated unfavorably.

There was a wide variation in the amount of alkali which resulted in the production of muscular contractions. The quantity apparently varied in direct proportion to the severity of the disease, although Loeb has shown that the precipitation of the calcium salts by a carbonate gives rise to muscular contractions. If administration of alkalies is delayed until uremic symptoms develop, secretion of urine follows promptly after injection of sodium bicarbonate, but the final termination is usually unaltered. The most important single factor in determining the amount and frequency with which alkali should be injected is the quantity of urine excreted. Sodium bicarbonate, in 1.5 per cent. solution, in 2 liter quantities, has been injected as soon as patients come out of collapse, and repeated at intervals of from twelve to twenty-four hours until a free secretion of urine follows. Aside from mild convulsions, the only other untoward symptoms following the injection of alkali was a temporary hematuria. This occurred in three of the fifty-five cases; it was slight in amount and persisted for from two to four days.

32. **Composition of the Blood in Asiatic Cholera.**—In the stage of collapse in cholera a loss of water in the blood was regularly encountered by Aron, accompanied by a corresponding loss of chlorids (salts). This water loss was constantly high in the blood of persons who died of cholera. In the later stages of the disease, the blood again shows an almost normal content of water, but the salts are not replaced to the normal amount. Therefore, the blood at this stage has a diminished salt content and is hypotonic.

34. **Specific Cure of Yaws.**—After using salvarsan in twenty-five cases of yaws, Strong believes it to be an ideal specific for this disease. Three or four days after the injection of the drug, the granulomatous lesions begin to disappear and in the course of from ten to twenty days they usually have disappeared entirely leaving a perfectly smooth, pigmented skin where the lesions previously existed. The absorption of tumor masses measuring several centimeters in diameter and about a centimeter in thickness in so short a time, and under the influence of no local treatment whatever, has been striking and surprising. Even in cases in which large granulomatous masses or deep ulcerations existed, these were healed within from two to four weeks. None of the patients has shown any signs of relapse, although each received but a single injection, and over four months have elapsed since most of them were inoculated.

Mississippi Medical Monthly, Vicksburg

February

35 The Physician's Duty to the Public. T. Purser, McComb City.
36 Uses and Abuses of Quinin. F. M. Brougher, Belen.
37 The Differential Diagnosis in Coma. A. K. Naugle, Abbott.
38 Why Doctors Should Join Their County Medical Societies. G. C. Phillips, Lexington.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

January

39 Acromegaly: Pierre Marie's Disease. P. E. Launois and M. H. Cesbron, Paris.
40 *Present Status of Drug Addiction in the United States. L. F. Kebler, Washington, D. C.
41 *U. S. P. 1910. How May It Be Constructed? O. T. Osborne, New Haven, Conn.
42 Disability from Fracture of the Femur. O. H. Allis, Philadelphia.

40. **Drug Addiction in the United States.**—The thoughtful and foremost medical men have been and are cautioning against the free use of morphin and opium, particularly in recurring pain; and the amount they are using is decreasing yearly. Kebler claims that, notwithstanding this fact, and the fact that legislation, federal, state and territorial, adverse to the indiscriminate use and sale of opium and morphin, their derivatives and preparations, has been enacted during the past few decades, the amount of opium per capita imported and consumed in the United States has doubled during the last forty years. Not only has there been this increase in the use of opium, its preparations and derivatives, but large quantities of other habit-forming drugs have been used initially, introduced chiefly for medicinal purposes. For example, cocain (cocain hydrochlorid) has been employed for about twenty-five years, and the amount consumed at present per annum is estimated at approximately 150,000 ounces, an amount ten times as great as actually needed. In addition to this, it is well-known that large quantities of acetanilid,

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antipyrin, acetphenetidin and diacetyl-morphin, and smaller quantities of hydrated chloral, codein, para-amino-benzol-diethyl-amino-ethanol, etc., are used. The amount of opium imported per annum during the past twenty years is slightly less than 500,000 pounds. The average yearly decrease during the past ten years is about 20,000 pounds. The present deterring factors are antinarcotic legislation and publicity.

From a comparison of the amount imported here with that in countries having efficient restrictive legislation, like Austria-Hungary, Germany, Holland, Italy and Spain, Kebler says it is clearly evident that from 80 to 90 per cent. of the opium imported is used improperly. It is variously estimated by those who are conversant with the situation that the number of drug habitués in the United States varies from 1,000,000 to 4,000,000. Most of the states have enacted laws forbidding the indiscriminate sale of cocain and cocain-bearing products, and to a certain extent this also holds true for morphin and preparations containing it. Still, in many instances, there are some features which do not render such laws as effective as they might be. Many states are enforcing local laws regulating the sale of morphin, cocain, etc., within their jurisdiction, but they are unable to control the introduction of these habit-forming drugs from localities outside of the state, and for this reason the officials find it difficult to make material headway. Manufacturers, importers and wholesalers, until recent years, have been supplying these agents to all comers, but recent activity shows that they are anxious to see the illegal use of such habit-forming drugs suppressed, notwithstanding the financial loss which they may encounter. It is a well-known fact that many wholesalers refuse to sell undue amounts of cocain to retailers, and from this it can readily be seen that there is a decided movement on foot toward suppressing drug addiction, not only on the part of the public, but also of manufacturers and dealers in these commodities.

It is well known that there are many factors at work tending to drug enslavement, among them being the host of soothing syrups, medicated soft drinks containing cocain, asthma remedies, catarrh remedies, consumption remedies, cough and cold remedies, and the more notorious drug addiction cures. It is often stated that medical men are frequently the chief factors in causing drug addiction. In order to obtain information on this subject, letters were addressed by Kebler to practicing physicians, sanitariums treating drug addiction under direct supervision, and sanitariums treating it both under direct supervision and in absentia only, throughout the United States. The data thus secured, with observations, are most interesting, but being published in tabular form cannot be abstracted.

41. Abstracted in THE JOURNAL, May 28, 1910, p. 1811.

Journal of Cutaneous Diseases, New York

February

43 Periadenitis Mucosa Necrotica Recurrens (Chronic Recurring Necrotic Granuloma of the Buccal Mucosa). R. L. Sutton, Kansas City, Mo.
44 Fibroma Molluscum, or Universal Neurofibromatosis. A. Ravogli, Cincinnati.
45 Isolation and Growth of the Acne Bacillus. E. D. Lovejoy and T. W. Hastings, New York.
46 Dr. Henry Granger Piffard: In Memoriam. G. H. Fox, New York.

American Journal of Surgery, New York

January

47 Pyuria. H. A. Kelley, Baltimore.
48 *Pylorospasm. S. McGuire, Richmond, Va.
49 Transfusion of Blood; Its Indications and Technic. J. S. Horsley, Richmond, Va.
50 Importance of Educating the Public in Regard to Cancer. S. Leigh, Norfolk, Va.
51 Gastric Symptoms from the Surgeon's Viewpoint. L. Frank, Louisville, Ky.
52 *Tumors of the Jaw Occurring Most Frequently in the Negro. W. F. Westmoreland, Atlanta, Ga.
53 Diagnosis of Obscure Cases of Appendicitis with Especial Reference to "Protective Appendicitis" (Morris). M. Rogers, Birmingham, Ala.
54 Quinin Anesthesia for Reducing Fractures, for Rectal Operations and for Prevention of Immediate Postoperative Pain in Amputation Stumps. V. Pleth and V. W. Pleth, Seguin, Texas.
55 Surgery Outside of the Hospital. J. W. Alsobrook, Plant City, Fla.
56 Eight Cases of *B. Aerogenes Capsulatus* Wound Infection. G. R. White, Savannah, Ga.
57 Cure of Stricture of the Rectum Complicating Fistulas. C. S. Venable, San Antonio, Texas.

February

58 *Intestinal Resection with a Technic Combining Murphy Button, Hartley and Lilienthal Methods. W. L. Wallace, Syracuse, N. Y.
59 *Abdominal Injuries and Their Treatment. C. H. Goodrich, Brooklyn, N. Y.
60 Medicolegal Aspect of Roentgen Rays from the Standpoint of the Surgeon. R. D. Mason, Omaha, Neb.
61 Metatarsalgia. H. C. Riggs, Brooklyn, N. Y.
62 Local Anesthesia. A. E. Hertzler, Kansas City, Mo.
63 Treatment of Acute Gonorrheal Urethritis. P. D. Littlejohn, New Haven, Conn.
64 A Case of Osteitis Deformans. N. P. Rathbun, Brooklyn, N. Y.

48 and 52. Abstracted in THE JOURNAL, Jan. 14, 1911, pp. 142 and 143.

58. **Intestinal Resection.**—When making an intestinal resection, Wallace found that a lateral anastomosis with a Murphy button by a certain method may be done with such rapidity that an immediate resection may safely be accomplished. He uses the Hartley method in making the lateral anastomosis, dropping half of a Murphy button into each end of the gut which is left after resection, and, after closing the ends of the gut by the Lilienthal method, pushes the halves of the button together. Lilienthal simply ties off the gut with twine instead of turning in or sewing up the end. Wallace has now used it six times with six successes. In three cases of strangulated hernia, he resected, made a lateral anastomosis with the Murphy button by the Hartley method, tied off the ends of the gut with fine linen or silk by the Lilienthal method, cut off the ends of the silk short and dropped the gut back, closing the abdomen without a drain. In another case of strangulated hernia he did the same, except that on account of the evident infection, he left a rubber drain down to the closed peritoneum. In one case of tuberculous salpingitis in which resection of the gut was necessary, it was accomplished in this way without drainage. In one case of appendicitis, in a child of 8, the end of the cecum, 1½ inches above the root of the appendix, together with the appendix and its mesentery, were tied off with one ligature and cut away.

59. **Abdominal Injuries.**—Goodrich urges an immediate aseptic abdominal section in every doubtful case of abdominal injury. Some of the important points in the surgical treatment of abdominal injuries are explained by him as follows:

1. Apply active measures to overcome or lessen shock, unless signs of active hemorrhage make quick action imperative. A reasonable time (one-half to three hours) may be allowed in cases of profound shock, to promote a helpful reaction.
2. Cleanse the skin as thoroughly and as widely as in any other abdominal case, notwithstanding the presence of indication for rapid work.
3. Precede an exploration by an intravenous saline infusion or a transfusion of blood when symptoms of hemorrhage are marked. As Crile has noted, "We may in this way transform a hopeless case into an average risk."
4. Make the search for intra-abdominal injuries thorough and systematic.
5. Cleanse the peritoneum thoroughly of septic material and blood, or fluid of any kind. This is best done by large gauze sponges, followed by copious irrigation, leaving the abdomen partly filled with saline solution.
6. Secure absolute hemostasis and water-tight repair of all wounds and ruptures.
7. Introduce drains whenever viscera have been penetrated or ruptured.
8. Use intravenous infusions of normal saline solution freely postoperatively in cases of marked shock or acute anemia.
9. Adopt the Fowler position and the ice coil in all cases as soon as reaction from shock is obtained.
10. If intestinal paresis supervenes, lavage every four hours will accomplish more than enemata.

Goodrich records a recent recovery from intestinal paresis so extreme as to be accompanied by frequent fecal vomiting, by the use of this measure.

Maryland Medical Journal, Baltimore

February

65 Importance of Direct Endoscopy in General Medical Practice. J. R. Winslow, Baltimore.
66 Medical and Surgical Aspects of Tumors, Including Inflammatory and Neoplastic Formations. J. C. Bloodgood, Baltimore.
67 Advantages of Decompression in Treatment of Head Injuries. A. McGlannan, Baltimore.
68 The Faucial Tonsil—Its Relation to Systemic Disease and Results of Its Removal. S. Rosenheim, Baltimore.

Journal of Biologic Chemistry, Baltimore

December

69 The Refractive Indices of Certain Proteins: Serum Globulin. T. B. Robertson, San Francisco.
70 The Nitrogen Metabolism of the Coyote. A. Hunter and M. H. Givens, Ithaca, N. Y.

71 Comparative Analysis of the Urine of the Fox, Dog and Coyote. P. B. Hawk.
72 Fermentation of Citric Acid in Milk. A. W. Bosworth and M. J. Prucha, Geneva, N. Y.
73 Determination of Inorganic and Organic Phosphorus in Meats. H. S. Grindley and E. L. Ross.
74 *Persistence of Strychnin in a Corpse. M. P. Cram and P. W. Meserve.
75 Determination of Ammonia in Urine. O. Folin, Boston.
76 Determination of Total Sulphur in Urine. S. R. Benedict, New York.
77 Conception and Definition of the Term "Catalysor." A. E. Taylor.
78 Refractive Indices of Certain Proteins: Casein in Alcohol-Water Mixtures. T. B. Robertson, San Francisco.

74. **Persistence of Strychnin in a Corpse.**—On Nov. 15, 1909, a man of 53 died under suspicious circumstances. The body was buried on Nov. 19, 1909; on November 29 of the same year it was disinterred, and certain organs removed and sent to the late Franklin G. Robinson for analysis. Professor Robinson's notes record that he found strychnin, but, owing to illness, he was unable to appear personally at the trial. The body, therefore, was exhumed a second time on March 18, 1910, the other organs removed which were sent to Cram. The body had been frozen most of the time, but the grave when opened was full of water, which was allowed to drain off. An embalming fluid of acid reaction had been used when the body was first buried, which made it appear likely that any strychnin would be dissolved out. The method used for determining strychnin was the usual one of extracting with alcohol made acid with acetic acid, evaporating the extract to soft dryness, extracting the residue with water, extracting the acid water solution with chloroform, and then the same solution made alkaline with chloroform, the strychnin coming out in the last chloroform extract. The strychnin was then purified by absolute alcohol. From 454 grams of the lung, 133 grams of kidney, 446 grams of muscle, 850 grams of small intestine and 560 grams of brain, each being tested separately, no strychnin was obtained. From 803 grams of liver was obtained 0.0015 gram of strychnin, and from the spinal cord 0.0033 gram. The spinal cord itself weighed 25 grams. The note-books of Professor Robinson record that in 290 grams of stomach contents he found 0.0277 gram of strychnin, and in 45 grams of kidney 0.0003 gram of strychnin. The spinal cord, being better protected from the action of the water in the grave, which was acid from the embalming fluid, had retained the strychnin better than the other parts.

West Virginia Medical Journal, Wheeling

February

79 Pathology, Symptomatology and Diagnosis of Diseases of the Prostate. G. Timberlake, Baltimore.
80 Glaucoma. E. A. Hildreth, Wheeling.
81 The Physician—His Legal Rights and Responsibilities. T. Morrison, Keyser.
82 The Internal Secretions. G. D. Lind, Greenwood.
83 Hyperemia as a Curative Agent. H. G. Nicholson, Charleston.
84 Local Anesthesia in Rectal Work—Its History and Its Indications. J. M. Lynch, New York.

American Journal of Diseases of Children, Chicago

February

85 *Congenital Stenosis of Pylorus. A. D. Bevan, Chicago.
86 *Cerebrospinal Meningitis, Its Etiology, Diagnosis, Prognosis and Treatment. C. H. Dunn, Boston.
87 *Relation Between Carpal Ossification and Physical and Mental Development. E. Long and E. W. Caldwell, New York.
88 *Frequency and Significance of Albumin in the Urines of Normal Children. S. McC. Hamill, Philadelphia, and K. D. Blackfan, Cambridge, N. Y.

85. **Congenital Stenosis of the Pylorus.**—Bevan's conclusions are that congenital pyloric obstruction is a definite, well-established pathologic condition; that it produces, for him who has seen it, an easily recognized clinical picture; that it can, as a rule, be differentiated from other conditions simulating it; that if early recognized it can be permanently relieved by overcoming the obstruction by modern surgical methods; and that the individual so saved can grow up and develop in a perfectly normal way.

86. **Cerebrospinal Meningitis.**—The specific methods of treatment which in Dunn's opinion are available in the various forms of cerebrospinal meningitis, and which should be more widely tried, until further evidence proves or disproves their value, are: tuberculous—early and repeated lumbar puncture; epidemic—antimeningitis serum; pneumococcus—antipneumococcus serum; streptococcus—antistreptococcus serum; influenza—early and repeated lumbar puncture; staphylococcus—homologous vaccine.

87. **Carpal Ossification and Physical and Mental Development.**—The investigations described by Long and Caldwell were made with a view to applying the ingenious method proposed by Rotch, that the stage of ossification of the carpal bones as determined by the radiograph may be used to standardize or grade growing children as to their capacity for physical and mental work. As a result of their investigation, Long and Caldwell are led to believe that the ossification of the one wrist of an individual is not the exact index of the ossification of the other wrist, and therefore it seems probable that the same inexact relation exists between the wrist and the remainder of the skeleton. Age, height and weight increase in general with advance in carpal ossification, but with many exceptions among both sexes. It would be impractical at least to regulate the mode of life of these children according to this classification alone, e. g., Class B includes a very bright child, 2 years, 6 months and 15 days old, and a very dull child of 6 years, 7 months and 29 days; Class D includes a child of fair intelligence, 2 years, 2 months and 2 days old, with a very bright child of 7 years and 29 days. They can find no relation between the degree of carpal development and quality of mind. Some idiots are as far advanced in carpal ossification as some normal children of good mentality and similar chronologic age. The relation between the stages of puberty and those of carpal ossification is too indefinite to warrant the latter's use as an index of physiologic development. And, finally, though carpal development alone is not an exact index, still when observed at intervals, and considered with other factors, it may become an aid in estimating the rapidity of growth of the skeleton in children. They believe that closer attention should be paid by the medical profession to the regulation of physical and mental tasks more in accordance with the individual child's capacity, and that development of the ossification centers of the skeleton may become a factor toward this result.

88. **Albumin in the Urine of Normal Children.**—In each specimen of urine, Hamill and Blackfan determined the color, the appearance, the specific gravity, the reaction (in twenty-four-hour specimens, the total acidity), the presence or absence of albumin, sugar, acetone, diacetic acid, indican, urobiligen and phenol; and microscopically, the presence or absence of cells, casts, cylindroids and crystals. Four hundred and forty-five specimens of urine were examined. These were obtained from 124 children, ranging in age from 18 months to 14 years. During the period of examination the usual routine of life was followed, except that the children were kept from school. There was no relationship between the specific gravity and the form or amount of albumin. The reaction had no influence on the production of albumin. Sugar, acetone and diacetic acid were never found. They may, therefore, be considered as having no bearing on the production of albumin. Indican, phenol and urobilinogen, when present, were usually associated with albumin, but albumin was sometimes absent when they were all present, and the amount was never greater when associated with them than it was in the cases in which they were absent. Crystals, when present in amounts, such as are occasionally found in normal children, are in no way responsible for the associated albumin. The mild disturbances of the intestinal digestion, as shown by the examination of the stools, were not sufficient to account for the occurrence of albumin. The blood-pressure was within the normal range in all cases and, therefore, did not influence the albumin output. The albumin elimination was the same on mixed and exclusive milk diets. They found no children in whom the albumin excretion corresponded to the requirements for postural or orthostatic albuminuria, a rather surprising result in view of the frequency with which this condition is supposed to occur.

Thirty-two and one-half per cent. of the children showed occasional hyaline casts and cylindroids in the urine. The authors do not consider their "occasional presence" as indicative of a lesion of the kidneys, but rather as suggesting a temporary overtaxation of the kidneys resulting from variations in the habits of life of the individuals, which are too slight

to be recognized. Eighty-eight and seven-tenths per cent. of the urine of these 124 children showed albumin, 27.4 per cent. showed serum-albumin alone and in combination; and 85.4 per cent., an albuminous body precipitated by acetic acid in the cold. These two albumins were nearly always present in very slight traces, occasionally in slight traces and rarely in traces. In thirty-eight children the twenty-four-hour specimens showed nucleo-albumin in all but one, and in this case samples examined over prolonged periods of time showed nucleo-albumin frequently. In these thirty-eight children, the percentage of serum-albumin was very much larger (42.1 per cent.) than in the total number of cases examined. The authors believe, therefore, that it is possible to demonstrate in the urine of every presumably healthy child traces of an albuminous body precipitated by acetic acid. Consequently, this substance must be regarded as an exceedingly common, if not constant manifestation in the urine of children under 14 years of age, and as of no clinical significance. Hamill and Blackfan do not believe that serum-albumin in the amounts in which it appears in these children indicates a diseased condition of the kidneys any more than does the presence of occasional hyaline casts and cylindroids, and that its etiology may be considered the same as that given for these former elements.

Journal of the Medical Society of New Jersey, Orange

February

89 The Nasal Accessory Sinuses and the Eye. G. H. Ward, Englewood.
90 Injury to the Eye from Burns, Scalds and Chemicals. C. J. Kipp, Newark.
91 The Accessory Sinuses. T. R. Chambers, Jersey City.
92 A Few Fundamental Principles Applicable in Treatment of Diseases of Disturbed Metabolism. H. Beates, Philadelphia.
93 Indications for Operating in Extra-Uterine Pregnancy. W. O. La Motte, Riverside.

California State Journal of Medicine, San Francisco

February

94 Hyperchlorhydria. W. F. Cheney, San Francisco.
95 Value of Rectal Examinations. A. J. Zobel, San Francisco.
96 Functional Periodicity in Women and Some of the Modifying Factors. C. D. Mosher, Palo Alto.
97 Relation of Gastric Hemorrhage to Chronic Appendicitis. C. G. Levison, San Francisco.
98 Determination of Pus in Diseases of the Accessory Cavities of the Nose. H. Horn, San Francisco.
99 *Unusual Manifestations of Defective Feet. J. T. Watkins, San Francisco.
100 *Etiology and Treatment of Enuresis. E. C. Fleischner, San Francisco.
101 Criminal Abortion. J. H. Barbat, San Francisco.
102 Ophthalmologic Cases: Convergent Strabismus. F. A. Hamlin, San Francisco.
103 Rest in Treatment of Pulmonary Tuberculosis. R. A. Peers, Colfax.
104 Primary Carcinoma of Bronchus in the Mediastinum. H. R. Oliver, San Francisco.
105 Crusade Against the Anopheles. T. B. Reardan, Oroville.
106 Uncinariasis Among Mexican Track Laborers. J. W. Colbert, Albuquerque, N. Mex.

99. **Manifestations of Defective Feet.**—Watkins emphasizes the importance of always being on the outlook for what is called "pronated foot," a condition which is capable, without presenting subjective local manifestations, of giving rise to remote symptoms mistakable for those of lesions so dissimilar as sciatica, coccygodynia, uterine relaxation and allied disorders, a variety of backaches and spinal osteo-arthritis. The treatment of those defects for which pronated foot may be mistaken is either operative or mechanical. The explanations of the various subjective symptoms of pronated foot are found in the disturbances it inaugurates in the normal mechanics of the erect attitude. Watkins reports several cases in point and discusses the mechanism of walking from the anatomic viewpoint.

100. **Etiology and Treatment of Enuresis.**—With the object of determining the value of thyroid treatment of enuresis, Fleischner treated ten patients as follows: One-fourth grain thyroid extract was given three times a day, increasing to ½ grain three times a day. Fluids were not allowed after 4 p. m., and the foot of the bed was decidedly elevated at night. Of these ten patients, eight improved; two did not improve. Of the eight who improved, in four cases circumcision had been previously performed without result. Fleischner believes that the postural and dietetic treatment are of undoubted value; their action is, naturally, combined. Mothers are advised to give the children no fluid beyond a glass of milk for the evening meal, after 4 in the afternoon; then they are told to place blocks under the foot of the bed so that that part is raised about 8 inches. The object of this is to keep the urine from coming down and irritating the neck of the bladder, and it is often efficacious.

Military Surgeon, Washington, D. C.

February

107 *Aneurysms in the U. S. Army Medical Museum. D. S. Lamb, Washington, D. C.
108 Elementary Suggestions Regarding Plans for Our Large Naval Hospitals. F. S. Nash, U. S. Navy.
109 The New Type Naval Hospital. A. W. Dunbar, U. S. Navy.
110 The Sanitary Officer. W. W. Reno, U. S. Army.
111 Report of Venereal Diseases at Camp Stotsenburg, Pampanga, P. I. W. H. Wilson, U. S. Army.
112 Features of the Hernia Operation. A. McGlannan, N. G., Md.
113 Cases of Tuberculosis Sinuses Treated with Bismuth Paste. A. G. Chittick, N. G., Ind.
114 Report of Tropical Disease Board. Observations at Hanoi and Haiphong, Tonkin Province. W. P. Chamberlain, H. D. Bloombergh and E. D. Kilbourne, U. S. Army.

107. Also published in *Washington Medical Annals*. January, 1911, and abstracted in THE JOURNAL, Feb. 11, p. 455.

Western Medical Review, Omaha, Neb.

February

115 *Stenosis of the Lower End of the Esophagus. H. L. Akin, Omaha.
116 Appendicitis. A. I. McKinnon, Lincoln, Neb.
117 Timely Ethical Problems. W. G. Hiltner, Lincoln, Neb.
118 Salvarsan in Syphilis. E. J. Angle, Lincoln, Neb.

115. **Stenosis of Lower End of Esophagus.**—Three cases are reported by Akin. He emphasizes several points, first of which is the importance of having the proper kind of bougie. The only reliable instrument, in his opinion, is a long 24 or 25-inch whalebone bougie, stiff enough so that it will not bend, but will go straight through where it is directed. His second point is the use of the silk thread swallowed the day before so as to allow it to become firmly engaged in the bowel below the stomach. This is a simple but highly commendable procedure, he asserts, because it enables the operator to introduce the bougie or dilator directly to the permeable point of the stricture and to use such force as is required to pass on into the stomach with a certain knowledge that his instrument is not going to deviate to the right or left and perhaps make false passage into the lung or pleural cavity. Akin favors dilatation of the stricture whenever this is possible.

Journal of the Michigan State Medical Society, Battle Creek

February

119 Surgical Treatment of Goiter. C. D. Brooks, Detroit.
120 Acute Poliomyelitis. G. L. Connor, Detroit.
121 Phases of Psychotherapy. C. W. Hitchcock, Detroit.
122 *A Business Man's Cold. J. V. White, Detroit.
123 Indication for Prostatectomy. F. B. Marshall, Muskegon.
124 Spina Bifida. N. S. MacDonald, Hancock.
125 Pregnancy and Fibroid Tumors of the Uterus. W. P. Manton, Detroit.

122. Abstracted in THE JOURNAL, Oct. 29, 1910, p. 1587.

Interstate Medical Journal, St. Louis

February

126 *Alterations of the Circulation in Goiter. C. C. Guthrie and A. H. Ryan, Pittsburg, Pa.
127 Abdominal Pain. H. A. Kelley, Baltimore.
128 Tuberculosis as it Concerns the Physician. L. F. Flick, Philadelphia.
129 A Frequent Etiologic Factor, Common to Facial Malformation and Acute Infectious Diseases. H. A. Potts, Chicago.
130 Uterine Hemorrhage: Its Relation to Uterine Cancer. F. Hinchey, St. Louis.
131 Artificial Feeding of Infant: Danger of Deficient Proteids. D. J. M. Miller, Atlantic City, N. J.
132 Case of Undescended Testicle. C. H. Chetwood, New York.

126. **Alterations of the Circulation in Goiter.**—Guthrie and Ryan record additional observations on the results following alterations of the circulation in goitrous thyroids, and further discuss these results in the light of other observations and considerations with a view of determining the factors concerned in their production. They found that marked anatomic changes occur in enlarged or goitrous thyroids of dogs after alteration of the circulation. The greatest changes observed occur when the circulation is reversed in the inferior thyroid vein by anastomosing this vein with the central end of the common carotid artery, or by making the anastomosis of the artery with the peripheral end of the internal jugular vein

below the point of origin of the inferior thyroid vein. The gross changes consist of a temporary swelling, followed by a marked decrease in size of the lobe on the operated side. The lobe feels much harder and denser. Microscopically, if the goiter be of the hyperplastic type, generally more normal staining colloid is seen after the operation; while if the goiter be of the colloid type, a decrease in the colloid substance is observed. In both cases the operated lobes in size, physical properties and histologic structure tend to revert to the normal. The authors believe that the change may rationally be interpreted from the standpoint of primary interference with the respiration of the tissues, which results in the death, disintegration and disappearance of abnormal tissue constituents. Also, accompanying the secondary effects due to the reactions of the tissues, absorption is probably increased so that the abnormal substances are quickly moved from the gland which accounts for their rapid disappearance. The more nearly normal tissue elements being more resistant or perhaps more favorably situated to revive, under the more nearly normal circulatory conditions established through the reaction of the tissues to the adverse condition, which indeed is strikingly similar to the current conceptions of an inflammatory reaction, resume and retain a more nearly normal function.

The reaction set up in the tissues is explainable as being due to the edema. But this may be only the indirect cause, for the accumulation of metabolic products together with substances originating from the death of tissue elements would probably act either together or the latter alone, more directly in producing an inflammatory reaction. On the whole, the results indicate that general symptoms of goiter are at least in part associated with deranged functions of the thyroid apparatus.

New Orleans Medical and Surgical Journal

February

133 Causes and Treatment of Backache in Women. A. de Roulet, Chicago.
134 Salvarsan in Syphilis. A. Nelken, New Orleans.
135 Treatment of Cardiac Insufficiency. J. B. Guthrie, New Orleans.
136 The Biology of *B. Lepræ*. C. W. Duval, New Orleans.
137 Practical Use of the Cystoscope in Differential Diagnosis. R. G. Holcombe, Lake Charles, La.
138 Problems in Obstetrics. E. M. Ellis, Crowley, La.
139 Advisability of Immediate Repair of the Cervix Uteri After Delivery. P. B. Salatich, New Orleans.
140 Toxemia of Pregnancy, Its Nature, Cause and Treatment. O. W. Cosby and R. H. Blackman, Monroe, La.
141 When Is Gonorrhea in Women Cured? W. B. Chamberlin, New Orleans.
142 Ligation of the Ovarian Vein for Thrombophlebitis of Puerperal Origin. C. J. Miller, New Orleans.
143 Removal of a Ninety-Five Pound Fibroid of the Uterus. H. S Cocram, New Orleans.
144 Hygiene and Sanitation. I. J. Newton, Monroe, La.

Virginia Medical Semi-Monthly, Richmond

February 10

145 Case of Adams-Stokes Syndrome. T. C. Harris, Kenbridge.
146 *Advanced Extrauterine Pregnancy. S. C. Carson, Greensboro, Ala.
147 Treatment of Some Forms of Cardiac Failure. L. F. Barker, Baltimore.
148 *Peculiar Elongated and Sickle-Shaped Red Blood-Corpuscles in a Case of Severe Anemia. R. E. Washburn, Charlottesville.
149 Mastoiditis: Report of the Last Year's Work. W. F. Mercer, Richmond.
150 Work Done on the Verumontanum. L. T. Price, Richmond.

146. Abstracted in THE JOURNAL, Sept. 24, 1910, p. 1133.

148. **Peculiar Red Blood-Corpuscles in Severe Anemia.**—This patient has been under observation, at intervals, since 1907. She is a negress, aged 25, a native of southwestern Virginia and has lived there all her life. When first seen, Oct. 25, 1910, she complained of weakness, soreness and pain in the left side, and a sore on the left leg. She has never had good health. When a child she had measles. Menstruation began when she was eighteen and has been fairly regular, normal in amount, and with little pain. When a small girl, she had pneumonia, with pleurisy on the left side, and claims to have had pain in that side since that time. Three times within the last five years she has had chills and fever, supposedly malaria. She has never had rheumatism. There is no history of a chronic cough, but she is often troubled with epistaxis and sometimes spits up bloody mucus. She has shortness of breath on exertion, night sweats, and sleep starts, and is also troubled with swelling about the wrists and ankles. After eating, she occasionally has severe abdominal pain and is often troubled with indigestion and constipation. There is no history of any kidney or bladder trouble, gonorrhea or syphilis. The woman is a cook and has always done house work. In September, 1910, she weighed 155 pounds, but has fallen off since that time.

About five years ago she first noticed that she became dizzy and short of breath on slight exertion; and was also troubled with swelling in the feet and ankles. About the same time, she knocked the skin off of the left shin and the wound became infected, causing a bad ulcer. Some time after this an ulcer started on the right leg, though she does not remember having hurt it. She was also troubled with severe pains in the abdomen. These pains would start on the left side and radiate to the region of the liver, and were sharp and stabbing in character. She returned to her home in December of the same year feeling much improved. In March, 1908, she was operated on for gall-stones, 107 being removed. She continued to have good health until the following April; at which time she complained of severe pain in her left side. This pain was more or less constant, worse in the day than at night, and also increasing on taking a deep breath and on pressure. She also complained of being constipated—the pain being worse then than when the bowels moved regularly. Physical examination showed the mucous membranes to be pale; tongue coated; lungs and liver negative. The heart was slightly enlarged, with a systolic murmur heard best at the apex and transmitted to the axilla. The average temperature ranged from 99 to 100 F., pulse from 80 to 100, blood pressure was 105. Blood examination, April, 1909, showed: red cells, 2,000,000; white cells, 11,000; hemoglobin (Sahli), 50 per cent. Differential white count was as follows: polymorphonuclears, 63 per cent.; small mononuclears, 25 per cent.; eosinophils, 4 per cent.; mast cells, 6 per cent. The red cells showed poikilocytes in a variety of shapes, the most common variety being of a crescent shape. At several subsequent examinations cells of the same shape were found.

St. Paul Medical Journal

February

151 Prognosis in the Initial Stages of General Paresis. C. R. Ball, St. Paul.
152 The Southern Minnesota Medical Association. W. T. Adams, Elgin, Minn.
153 The Minnesota Valley Medical Association. E. J. Davis, Minnehaha, Minn.
154 Then and Now: The Medical Profession in Minnesota Thirty Years Ago and Its Standing at Present. J. W. Andrews, Mankota, Minn.
155 Jaundice. J. S. Gilfillan, St. Paul.

Louisville Monthly Journal of Medicine and Surgery

February

156 Chronic Lesions of the Stomach. J. G. Sherrill, Louisville.
157 A Case of Glanders in a Physician. C. Skinner, Louisville.
158 The Medical Profession Must Change Its Tactics. W. J. Robinson, New York.

Colorado Medicine, Denver

February

159 Present Status of Bottle Feeding in Normal Infants. W. T. Little, Canon City.
160 Management of Difficult Cases of Bottle Feeding. H. B. Whitney, Denver.
161 Management of Breast Feeding. G. H. Cattermole, Denver.
162 Vaccine Therapy: Theories Regarding Certain Failures. G. B. Webb and G. B. Gilbert, Colorado Springs.
163 Infantile Indigestion. F. P. Gengenbach, Denver.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

February 4

1 *Medical Organization. W. Osler.
2 Anatomy and Morbid Anatomy in Clinical Surgery. C. B. Lockwood.
3 *Treatment of Gout and Rheumatism by Radium. W. His.
4 *Mechanical Effects of Right-Sided Pleural Effusion. A. C. Geddes.
5 *Treatment of 300 Nevi by Freezing. J. L. Bunch.
6 *Carcinoma of the Stomach in a Youth of Nineteeen. J. R. C. Canney.
7 History of Yellow Fever in West Africa. Sir R. Boyce.
8 High Temperature After Labor and Its Treatment with Acetyl-Salicylic Acid (Aspirin). G. H. Fink.

1. **Organization in the Profession.**—Osler points out that there is an organization in the profession and an organization of the profession—the one deals with the mutual relations of medical men with each other and with the public, the other is concerned with his relations to the state, and with the faculty of medicine in its corporative capacity. There are numerous organizations, but the profession is not yet self-controlled through any one representative body, as it certainly should be in this democratic age. Than medical practitioners, says Osler, no men need more acutely the benefits of cooperation, and yet they are notoriously difficult units to unite. Once split off from the parent college or school, a majority of practitioners live lives of isolation, often, indeed, of great loneliness. Even in a city a very busy man may see surprisingly little of his colleagues and, what is worse, he may desire to see still less. Of the value to the local practitioner of a medical society and of a library all are agreed. The medical society may do three things. It is the most important single factor in the promotion of that unity and good fellowship which adds so much to the dignity of the profession. The second great function is postgraduate instruction; to each member the medical society should be a sort of clearing-house of his clinical experience. A third equally important function is the support of a library. A few good journals and the new books are all that the members should ask of the library committee. Osler then deals more particularly with the function of the county hospital in postgraduate education. As a class, he says, physicians do not appreciate enough the importance of continuous education in their professional life. To be up to date a man must keep in touch with the advance guard of the profession, and this is not easy to do in any course of reading, however thorough; he must come in contact with the men who are doing the work. While it is not too much to ask that a man should break away every few years from the routine of practice and go to a postgraduate school, there is another and easier way—the postgraduate school may be brought to him. Here comes in a function of the first importance in a county hospital, one can do his own postgraduate work.

3. **Radium in Gout and Rheumatism.**—Of 100 patients with chronic rheumatism treated by His with radium, forty-seven were improved, twenty-nine were considerably improved, five nearly cured, thirteen were uninfluenced by the treatment, and the result was not apparent in six. There were several cases of myalgia. A few of these patients have reacted in a most marked manner to the radium treatment, others were improved, and others, again, were absolutely uninfluenced. On the whole, His found that the younger the individual, the less advanced the illness, the better the results. Even in very long standing cases alleviation of pain may, at all events, be looked for. The results in gout were more striking. He was able to observe and treat twenty-eight patients for a considerable period. Of these four remained unaffected, while in twenty-four great improvement in the condition was achieved. Some of the patients have remained free from symptoms for a year after the termination of treatment. His was in a position to examine the blood for uric acid, both before and after the treatment, in eighteen cases. In fifteen the desired result was effected promptly; in a severe case of gout the blood was found to be free from uric acid after fourteen days' treatment by drinking water containing radium. He observed tophi in the ear disappear on two occasions during the treatment. The clinical improvement, however, did not always run parallel to the uric acid content of the blood. His noted marked improvement in a patient who was energetically treated, in spite of the fact that the blood retained its uric acid. In another patient, who had gouty nodules all over the body, no uric acid was present in the blood either at the beginning or toward the end of the treatment, and yet the patient had one attack after another during the entire time. In the majority of cases, at all events, His concludes that in the treatment of gout radium is a very powerful remedy, even if some persons are refractory to the treatment.

4. **Right-Sided Pleural Effusion.**—As a result of the consideration of his cases, Geddes is confirmed in his opinion that one cause of sudden death in cases of right-sided pleural effusion may well be occlusion of the great veins as they approach the heart, and more especially occlusion of the inferior vena cava.

5. **Treatment of Nevi by Freezing.**—Bunch has successfully treated with carbon dioxid 300 nevi of various extent and size. Most of these lesions were sources of disfigurement, many of them being on the face; but some were in positions where only a sentimental feeling on the part of the parents, and no cosmetic necessity, seemed to make their removal desirable. Such were nevi of the vulva, of the penis, and of the margin of the anus, and they were interesting from the point of view of the possibility of sepsis; but Bunch has not seen one in these positions which gave any trouble or failed to react in the ordinary way or to heal up normally. Most of these patients were treated at the hospital and included capillary, stellate, cavernous and pigmented nevi; some were small and some were several inches in diameter, flat, or markedly raised above the adjacent healthy skin, forming prominent red or purple swellings. For all such cases, Bunch says, treatment by solid carbon dioxid cannot be improved on, but for large port-wine stains, involving part or whole of one side of the face, where a considerable area has to be treated at a single application, he prefers to employ liquid air.

6. **Gastric Cancer in a Youth.**—One of the chief points in this case is that it illustrates how misleading the abnormal age incidence of a disease may be in coming to a correct diagnosis. The temporary improvement, with proper medical care and nursing in the earlier stages of the case, is remarkable.

Lancet, London

February 4

9 Color Vision and Color Blindness. F. W. Edridge-Green.
10 The Position of Sir Charles Bell Among Anatomists. A. Keith.
11 Treatment of Extensive Dental Caries in Children by Tooth Extraction. J. F. Coyler.
12 *"X" Bodies in Human Blood. A. Balfour.
13 Cases Illustrating Effects of Hyperemia by Elastic Bandage on Ununited Fractures. A. E. Barker.
14 Treatment of Skin Diseases by Hyperemia. W. K. Sibley.
15 *Magnesium Sulphate in Erysipelas. N. H. Choksy.

12. **"X" Bodies in Human Blood.**—These bodies were found in blood-slides made from a patient who was suffering from urticaria nocturna. The disease was of four months' standing. The patient was a white woman, aged about 18, married, and nursing a child 1 year old; the child was healthy. Every evening about 7 o'clock flat, solid, more or less elevated wheals, irregular in size and shape, began to appear all over the body. These wheals disappeared and others appeared till the early morning, when the eruption began to diminish, and about sunrise nothing was left and the patient looked normal, like any other person. The eruption was accompanied by a severe itching and burning sensation; there was no fever and no disturbance of any of the systems of the body. In one of the films, Balfour found typical "X" bodies in considerable numbers, free, and occasionally lying on the red cells. A fairly common form was a small body about one-eighth the size of a red corpuscle, spherical in form, and consisting of a faint capsule with a circular center staining deep blue. The majority, however, had centers more of a pale lilac than a blue color, and contained faintly staining material between their capsules and their centers. What may be called large and intermediate forms of a similar form were present, but in the former the capsule was not so defined, the appearance being rather that of a halo of more faintly staining substance surrounding a deeply stained spherical core. Very few forms with concentric rings were observed; and only one or two of large "solid" coccus-like type. Bodies described as fragmented were encountered. Some of these had only a chip, as it were, broken from them, or looked like biscuits from which one had bitten out a piece. Distinctly oval forms were seen, usually of considerable size, and also a curious oblong appearance. Small forms measuring 3 μ in diameter were met with, one of which showed a segmentation of the central spot into four; another no dark center, but dark spots at its periphery; and yet another a kind of inner capsule. Many of the smaller forms were homogeneous, showing no dark centers whatever, while some of the larger forms, with distinct cores, showed granular material between their

capsules and their centers. In this there were sometimes small blue spots or granules. Others, again, were irregular in shape, being what may be called "knobbed" bodies. Balfour found no trace of chromatin in these bodies; but lying free, there was a considerable amount of amphorous-looking material which took on a pale lilac stain like some of the smaller bodies. This was more plentiful in that part of the film where the bodies occurred. It will be seen, then, that the bodies are pleomorphic, although quite distinct from all the blood elements, and readily recognizable as specific entities.

15. **Magnesium Sulphate in Erysipelas.**—Four cases are reported by Choksy in which the immediate effects of the application of magnesium sulphate solution were extremely beneficial. Pain and swelling abated, fever decreased, and extension of the disease was controlled in the majority of cases. A saturated solution of magnesium sulphate in water (preferably strained through muslin) was applied round the limb or on the face as a mask, extending well beyond the inflamed area, in from 10 to 15 layers of gauze or a thin layer of absorbent cotton or lint, and covered with oiled-silk or wax paper. The dressing should be wetted as frequently as it gets dry, about once in two hours. It should be removed once in twelve hours for inspection and immediately reapplied. The affected area should not be washed during treatment.

Journal of Tropical Medicine and Hygiene, London

February 1

16 Trypanosome Diseases of Domestic Animals in Uganda. Sir D. Bruce.
17 Tropical Life as it Affects Life Insurance. J. Cantlie.

Australian Medical Journal, Melbourne

December

18 Tick Fever or Spirillosis and Monadinitis of Fowls. A. A. Brown.
19 Case of Gunshot Wound of the Heart. C. H. W. Hardy.
20 *Autoplastic Ovarian Transplantation and Its Clinical Significance. J. H. Nattrass.
21 *General Anesthesia. R. W. Hornabrook.
22 *Treatment of Acute Pneumonia by Continuous and Persistent Diaphoresis. G. M. Reid.

20. **Autoplastic Ovarian Transplantation.**—Nattrass is convinced that it is possible to remove the ovary from its normal position in the female body and to transplant it on to other tissues. In the experiments performed by him, ovaries were successfully grafted on to the kidney, spleen, subcutaneously on the external oblique muscle, on the peritoneum, periosteum and the external intercostal muscles. When the transplanted ovary is examined in the early stage, it is found to be firm in consistence, whiter and slightly larger than normal. This is shown by the microscope to be due to swelling of the cells of the stroma, which have undergone fatty degeneration. This degenerative change was found to be present in most of the specimens examined. The amount seems to be inversely proportional to the vascularity of the tissues receiving the graft, and directly proportional to the thickness and density of the graft itself. Thus there was more degeneration in a subcutaneous, than in a renal or splenic graft. In the older grafts there is a diminution in the size of the ovary. There is an increase in the amount of the fibrous tissue, a progressive absorption and repair of pathologic products, a continued development of egg cells, and production and maturation of Graafian follicles, although not nearly to the same extent as in the normal ovary. The grafts become firmly adherent to the adjacent tissues by dense fibrous bands. The graft when placed in its new position is undoubtedly nourished by transudation of fluid from the lymph spaces of the adjacent tissue, hence the periphery of the ovary, or the egg-bearing part, always retains its vitality; but later, blood-vessels become developed and vascular union is established, the graft thus receiving blood from the arterial system. A female dog whose ovaries were removed from the abdominal cavity and were grafted, one on the external oblique muscle, and the other in the sheath of the rectus muscle, repeatedly showed all the symptoms of sexual heat, i. e., vulvovaginal congestion, and sanguineous discharge, and was warded by the dog, showing that the ovaries, even though in this abnormal position, continued to carry on their functions as organs of internal secretion and to regulate the sexual life of the animal. Nattrass believes that the autoplastic grafting of ovaries is a measure that ought to take its place and fulfil a definite purpose in conservative gynecologic surgery.

21. Also published in the *Australasian Medical Gazette*, December, 1910.

22. **Treatment of Acute Pneumonia.**—Reid claims that if free and persistent diaphoresis, which necessarily entails a primary dilatation of the skin capillaries, can be established in the first or congestive stage of a threatening pneumonia, the attack can be aborted. When the second or exudative stage has begun, and is progressing, the same method of treatment will by its action still prove effective in limiting the exudative process, and may, furthermore, have a vitally beneficial action in preventing the fatal accumulation of carbonic acid, and other morbid products engendered by the diminished lung function, and increased metabolism by removing the same from the system in or with the sweat. *Pari passu*, diaphoresis reduces body temperature, and checks tissue waste, etc. In effecting his object, Reid has trusted mainly to medicinal agents, with, in children, the additional aid of the hot mustard bath, and in adults the hot-pack or warm sponging. The drug which he mostly employs is a physiologically pure salicylate of soda, in four-hour doses, up to 15 or 20 grains, according to age, and, guided and controlled by the patient's temperature, taken and recorded every four hours. He has also used acetphenetidin in doses up to 10 grains every four hours with the same precautions. With both drugs he has been in the habit of combining general and cardiac tonics and stimulants. His results, in a limited number of cases, have been good, and he has specially noted the absence of cerebral symptoms where the diaphoresis was satisfactory. Several cases in which sweating was interrupted, or could not be properly established for obvious reasons, terminated fatally.

Australasian Medical Gazette, Sydney

December

23 Better Medical Organization. D. Hardie.
24 The Tendency Toward Nationalization of Medicine. J. H. L. Cumpston.
25 Bearing of Recent Advances in the Physiology of the Digestive Glands on Gastric Surgery. J. Flynn.
26 Ununited Intracapsular Fracture of the Neck of the Femur Successfully Operated On. M. Herz.
27 A Case of Retroperitoneal Abdominopelvic Lipoma. T. Flaschi.
28 Surgical Dyspepsias, Especially Appendix Dyspepsia. G. Craig.
29 *General Anesthesia. R. W. Hornabrook.

29. Also published in the *Australian Medical Journal*, December, 1910.

Annales de Gynécologie et d'Obstétrique, Paris

January, XXXVIII, No. 1, pp. 1-64

30 Torticollis from Congenital Myopathy. A. Couvelaire.

Archives des Maladies de l'App. Digestif, Paris

December, IV, No. 12, pp. 689-748

31 *The Antitryptic Index for Serodiagnosis of Gastro-Intestinal Cancer. J. C. Roux and R. Savignac.

31. **The Antitryptic Index for Serodiagnosis of Cancer.**—Roux and Savignac have simplified the antitrypsin test devised by Müller and Jochmann and modified by Fuld and Gross. They found the test positive in 89 per cent. of fifty-three cases of certain cancer and in 80 per cent. of the suspects. Except possibly in exophthalmic goiter, tuberculosis and early in pregnancy, the test was negative in the controls, and the conflicting findings possible in the conditions named would seldom, they think, lead to any confusion in diagnosis of cancer. They are convinced that negative findings may be regarded as almost certainly excluding malignant disease. Their technic requires only an hour to complete the test. They use a mixture of equal parts of milk and 2 per cent. solution of agar, filtered while still hot. The whole is then heated to 100 C. in the water bath, then cooled to 60 C. and poured out in a thin layer on Petri dishes. One drop of blood-serum is mixed with 1, 2, 3, 4 or more drops of a 1 per cent. solution of trypsin, in turn, and 1 drop of each of the dilutions is placed on one of the Petri dishes, and near it is deposited a control drop of the pure trypsin solution. The dishes are then incubated for an hour at 50 C. The drop of trypsin digests out the milk casein in the agar mixture and

the antitryptic index is the number of drops of the solution mixed with the serum which are required to overcome the antitryptic power of the serum. Four drops is the highest normal range, and any index over this is strong evidence of the existence of malignant disease. The details of fifty-three cases are given in full and the findings tabulated—the whole forming, they think, an important brief in favor of the differential importance of this simple test.

Archives des Maladies du Cœur, Etc., Paris

January, IV, No. 1, pp. 1-62

32 Prognosis and Treatment of Arrhythmia. H. Vaquez.
33 *"Blood Diseases." (Les syndromes hématiques associés.) M. Labbé and Laignel-Lavastine.

33. **Blood Diseases.**—Labbé and Lavastine report two cases of chronic purpura and hemophilia in a girl of 16 and a woman of 34, the latter presenting also the signs of pernicious anemia. They comment on the fact that the so-called blood diseases are rather syndromes due to histochemical changes in the blood, resulting from a variety of causes. The clinical evolution of the cases and the action of the treatment instituted show that the three syndromes were not interdependent but merely casually associated. Under serotherapy the tendency to hemophilia was arrested in both patients; the first patient recovered, but the pernicious anemia in the other continued its fatal course unmodified.

Bulletin de l'Académie de Médecine, Paris

January 10, LXXV, No. 2, pp. 29-40

34 Advantages of Pyelotomy for Removal of Kidney Calculi. M. Le Dentu.

January 17, No. 3, pp. 41-58

35 Hectine in Syphilis. H. Hallopeau.
36 *Case of Rapid Actinomycosis. E. Schwartz.

36. **Actinomycosis.**—Schwartz' patient was a farmer who felt a sting on his cheek while sitting in the grass; a hard and painful tumor developed at the spot. It was excised the sixth week and proved to be an actinomycotic process. The true nature of the process had never occurred to any one or potassium iodid would have been given and operation not attempted, as it is liable to induce metastatic embolism. Letulle has recently encountered a case of circumscribed actinomycotic pleurisy in which the focus was excised and a few weeks later the patient succumbed to a metastatic abscess in the brain.

Bulletins de la Société de Pédiatrie, Paris

December, XII, No. 9, pp. 501-567

37 *Developmental Defects Connected with Suprarenal Lesions. (Dystrophies en relation avec des lésions de capsules surrénales: Hirsutisme et progeria.) E. Apert.
38 Hydrocephalus Following Meningitis. R. Voisin.
39 "Scapulum Valgum" in Rachitis. (Elévation congénitale de l'omoplate chez un enfant atteint de malformations multiples.) Nageotte-Wilbouchewitch and E. Apert.
40 Slight Hemiplegia. Nageotte-Wilbouchewitch.
41 *Insufficiently-Fed Infants. (Etude clinique de l'hypoalimentation chez les nourrissons.) P. Merklen.

37. **Developmental Defects Connected with Suprarenal Lesions.**—Apert reviews the necropsy findings in thirty-five cases of disease of the suprarenal cortex on record and describes the symptoms that had been observed in the individuals during life. They form a special syndrome different, he declares, from that of Addison's disease, but almost equally distinct. In fact there are two syndromes, he says, one resulting from excessive functioning and the other from defective functioning of the suprarenal cortex. The former is characterized by excessive development of the hair and of adipose tissue and of the body in general, with disturbances in the genital functions, while defective development in these directions is the result of imperfect development of the suprarenal cortex. He applies the term "hirsutism" and "progeria" to these different types and states that the former may reveal the presence of a tumor, possibly a cancer, in the suprarenal cortex, the removal of which is urgently indicated, while in the progeria type—senile dwarfism—organotherapy is indicated, the suprarenal capsule itself being administered and not an extract of the medulla.

41. **Insufficiently Fed Infants.**—Merklen comments on the crying of the infant when it does not get enough food at a meal, its restlessness and its gradual exhaustion and dropping to sleep, the whole picture being very different from the fatigue and slumber of the well-fed healthy child. Even during its sleep the child is still restless, and it whimpers at times, while the slightest noise rouses it, when it appeals anew for the nourishment it needs without having the strength to make its appeals very insistent. There is also, he states, a marked tendency to a false constipation, not enough food being obtained to make normal stools; the walls of the intestine, suffering from lack of nourishment, grow too weak to move the feces along. Sometimes this supposed constipation is the first sign to call attention to the fact that the child is not thriving. In other cases, the stools are regular but they have the aspect of those with ordinary enteritis; even diarrhea may be observed. The stools may be fluid even when the bowels can be moved only with a suppository. These diarrheic stools alternated with periods of constipation in one of the four cases reported in detail. The possibility of insufficient nourishment should never be forgotten as, if gastro-intestinal infection is assumed and the food still further reduced, serious trouble may follow. In two of his cases the infants vomited frequently; as a rule, the vomiting in these cases follows not long after the meal. The true cause for the vomiting can be detected by noting the amount of food the child is obtaining and the improvement that follows an ampler ration. One of the four children vomited in the morning before it had had any food. Another sign of defective nourishment is the small amount of urine although, like the constipation, it is a false oliguria; it was pronounced in three of the four cases reported. The way the child nurses is also characteristic, sucking slowly and stopping often; or it sucks and no swallowing movements can be detected. Some infants give up when they realize the futility of their efforts, and lie with open eyes or in a somnolent condition, while others fret incessantly. The flabbiness of the muscles is another sign, while the wrinkled skin and pallor also attract attention; but the infant's eyes are bright and its glance is vivacious until the defective nourishment becomes actual inanition. If recognized in time and the child is properly fed, it recuperates, he says, with astonishing rapidity.

Lyon Médical, Lyons

January 1, CXVI, No. 1, pp. 1-56

42 Postoperative Inflammatory Tumors in the Omentum. (Epiploïtes post-opératives.) X. Delore.

January 8, No. 2, pp. 57-96

43 Improved Technic for Induced Pneumothorax. (De quelques moyens pratiques destinés à prévenir les accidents immédiats du pneumothorax artificiel.) B. Lyonnet and M. Piéry.

January 15, No. 3, pp. 97-132

44 Pathogenesis of Progressive Scleroderma. C. Roubier and A. Lacassagne.

January 22, No. 4, pp. 133-168

45 Primary Melanosarcoma of the Rectum. A. Chalier.

Presse Médicale, Paris

January 18, XIX, No. 5, pp. 41-48

46 *Differential Importance of Albumin in Sputum. M. Gantz and R. Hertz.

January 21, No. 6, pp. 49-56

47 Meningeal Form of Actinobacillosis. P. Ravaut and Pinoy.
48 Congenital Myxedema from Defect in Thyroid Development. G. Roussy and J. Clunet.
49 Ptosis of Liver. (L'hépatoptose avec interposition de viscères entre le foie et la coupole diaphragmatique.) D. Chilaiditi.
50 Grafted Artery. (Cas de greffe artérielle.) A. Pirovano.

January 25, No. 7, pp. 57-64

51 Serodiagnosis of Echinococcus Disease. J. P. Urioste and A. Scaltritti.

46. **Diagnostic Importance of Albumin in Sputum.**—Gantz and Hertz applied tests to determine the presence of albumin in the sputum of 125 patients, each examined two or three times. The group included only sixty with known tuberculosis. The simplicity of the albumin test and its reliability in revealing an inflammatory process in the lung or pulmonary edema commend it for general adoption, they assert, as a valuable bedside test. The albumin reaction is not obtained in bronchial catarrh and it is dubious in fibrous pulmonary tuberculosis, but it is positive in advanced and incipient tuberculous pulmonary lesions, in pneumonia and embolism and in even slight pulmonary edema. The test was made by adding 2 c.c. of acetic acid and 10 c.c. of dis-

tilled water to 10 c.c. of sputum. The mixture was then stirred briskly with a glass rod, filtered and the filtrate boiled, when the albumin was thrown down. It was sometimes necessary to add a little sodium hydroxid when the fluid was too acid.

Revue de Gynécologie, Paris

January, XVI, No. 1, pp. 1-88

52 Artificial Vagina Made from Transplanted Intestine: Seventh Case on Record. J. Abadie.
53 Rupture of Large Blood Vessels in Abdominal Contusions. Ducuing and Florence.

Berliner klinische Wochenschrift

January 23, XLVIII, No. 5, pp. 153-196

54 Cyst Formation in Kidney, Liver and Spleen. (Cystenbildungen der Niere, Leber, Milz und ihre Entstehung.) H. Coenen.
55 Improved Radiologic Examination of Gastro-Intestinal Tract. G. Holzknecht.
56 *Salvarsan. (Zur Wirkungs- und Anwendungsweise von Salvarsan.) F. Lesser.
57 Pfannenstill's "Two-Route" Treatment of Lupus of the Nose. (Die Behandlung des Lupus cavi nasi mittelst Iodnatrium und Wasserstoffsuperoxyd nach der Methode von Dr. S. A. Pfannenstiel.) O. Strandberg.
58 Improved Technic for Staining *Spirochæta pallida*. E. Klausner.
59 *Apical Percussion Findings. (Zur diagnostischen Bewertung der Befunde über den Lungenspitzen.) E. Laser.
60 *Stammering. (Zur Psychologie und Therapie des Stotterns.) O. Aronsohn.

56. **Salvarsan and the Wassermann Reaction.**—Lesser emphasizes that medication in syphilis should be guided by the reaction to the Wassermann test, as he believes that only when the test is permanently negative can the disease be regarded as inactive or cured. The aim should be, he thinks, to give the salvarsan in doses that will tone up the organs and enable them to manufacture the necessary antibodies, giving up the idea of trying to kill all the spirochetes at one stroke. This tonic action on tissues and organs is realized better with small than with large doses; the latter have a toxic action and impair functioning rather than stimulate it in the various organs. His experience has been that the best technic on these principles is to inject 0.1 gm. of salvarsan, in suspension in oil of sweet almonds, once a week, according to the technic for injection of the insoluble mercurial salts. He thus injects 0.6 gm. of salvarsan in all in about 6 c.c. of oil. A week after the sixth injection the Wassermann test is applied and if the findings are still positive he continues the injections. These small doses are convenient for outpatients, and he advocates having the salvarsan put on the market in 0.1 gm. doses already mixed with the oil.

59. **Puzzling Physiologic Apical Findings.**—Laser has encountered a number of cases in which patients had been sent to a sanatorium for lung diseases on account of supposed pathologic percussion findings at the apices, but time revealed that the apices were physiologic. He comments on the trail of broken engagements, distress and poverty liable to follow a mistaken assumption of tuberculosis, and describes the features of the percussion findings at the apex which differentiate the physiologic from those with tuberculous processes. The patients in the cases he has encountered were mostly girls, inclined to be pale and thin, complaining of lassitude and cough, and some with mucous expectoration. The area of resonance over the right apex was abnormally small; frequently the right apex dragged behind, and the breathing sound was more distinct here than in the left apex; especially over the right supraspinous fossa the expiration sounded peculiarly loud and long, but there were never any râles, bacilli in the sputum or fever. These findings persist unmodified for years and if other persons not suspected of tuberculosis are examined systematically, as Laser has done on a large scale, similar findings will frequently be discovered in the healthy. He is inclined to explain them as the result merely of an unusually wide lumen of the right bronchial tube—a physiologic occurrence. In some people both apices present the same findings, and they are liable to occur in slender men as well as in women. Blümel has recently called attention to similar findings in persons unable to breathe freely through the nose, and in looking over his records Laser has also found it noted that some of the patients in question were mouth-breathers

60. **Stammering.**—Aronsohn explains stammering as a psychologic infirmity. These individuals are generally morbidly afraid of laying themselves open to ridicule and consequently they strive to suppress emotional stress on what they are saying. Treatment should be along psychologic lines, he affirms. It is irrational to try to train the muscles to coordination when the trouble is in the mind and not in the muscles. The main point is to teach the individual to think simply and to express himself simply and genuinely, paying no attention to the way he speaks. Reading exercises are useful adjuvants except when the patient does not stutter when reading aloud.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

December 30, XIII, No. 23, pp. 881-928

61 *Hernia in the Linea Alba. (Hernien der Linea alba und ihre Bedeutung für die innere Medizin.) L. Müller. Commenced in No. 22.

61. **Epigastric Hernia.**—Müller summarizes in turn the principal points of sixty-eight articles that have been published bearing on hernia in the linea alba and its importance for internal medicine. The insignificance of the objective findings in comparison with the serious stomach and intestinal disturbances is a prominent feature. In one of Sebba's cases, a woman of 46 had suffered for eighteen years from gastro-intestinal disturbances with repeated green vomiting; finally symptoms of ileus developed. This led to the discovery of the epigastric hernia hidden behind the unusually thick layer of adipose tissue in the abdominal wall. Richter warns that the hernia may easily escape detection unless the patient is examined standing with the trunk bent forward. In the dorsal decubitus the hernia becomes spontaneously reduced and escapes discovery. A history of work requiring much bending forward and backward, carrying heavy loads, and other factors tending to weaken the upper abdominal wall, may give the clue to the source of the trouble, as these factors are seldom encountered in the history of gastric ulcer. The increased intensity of the symptoms after physical exercise also speaks more for hernia than for ulcer; the discomfort with the latter is generally associated with food. Temporary relief from discomfort is often obtained with ulcer when the patient lies on the right side, but with hernia, relief is obtained by reclining on the back. The tenderness also is more localized and constantly at the same point. Gastric ulcer is more common in anemic girls, and hernia in robust, hard-working men. Stomach colic and localized pain in the linea alba may sometimes result from purely nervous causes, from intercostal neuritis after influenza, from gall-bladder disease, pancreatitis or appendicitis, enteroptosis, and retroflexion of the uterus. In two cases reported by Mezger the disturbances were relieved by operative treatment of the epigastric hernia but recurred later and an accompanying or causal gastric ulcer was discovered. Ury and Strauss have reported eight similar cases and suggest that the traction from the hernia led to development of the ulcer. Kelling thinks that irritation of the nerves from the presence of the hernia may lead to secondary ulceration in the stomach by reflex action. Capelle has reported that the thirty-five patients with epigastric hernia who have been given operative treatment at the Breslau surgical clinic, were all apparently cured but reexamination a year later showed that the cure had been permanent in only nine; the others had more or less disturbances and the hernia had recurred in six. In seven cases non-absorbable sutures and cicatricial adhesions were probably responsible for the trouble; seven other patients complained of gastric disturbances and an ulcer was probably responsible in two. A truss is of little use for epigastric hernia as it will not stay in place at this point.

Deutsche medizinische Wochenschrift, Berlin

January 26, XXXVII, No. 4, pp. 145-192

62 *Epidemic Poliomyelitis. (Heine-Medinsche Krankheit.) A. Baginsky.
63 Esch's Cholera Hemoglobin Culture Medium. A. Friedrichs.
64 *Syphilis of the Stomach. (Syphilis des Magens.) M. Sieglheim.
65 *Febrile Liver Syphilis. (Klinischer Befund und pathologisch-anatomischer Befund bei zwei Fällen von tertiärer fieberhafter Leberlues.) L. Kirchheim.

66 Improved Technic for Epiphanin Serodiagnosis of Syphilis. W. Weichardt.
67 *Myeloid Chloroma. E. Paulicek and L. Wutscher.
68 Primary Typhlitis. K. F. Herhold.
69 Physiologic Action of Thallium. A. Buschke.
70 *Traumatic Sarcoma. E. Heinrich.
71 *Sodium Thiosulphate for Removal of Iodin Stains. (Natrium hyposulfurosum als Jodabwaschmittel.) F. Snoy.
72 Children's Sanatorium. (Die Kinderheilstätten vom roten Kreuz in Hohenlychen.) A. Bruck.
73 Biogenesis and Ontogenesis. (Haeckels biogenetisches Grundgesetz und das ontogenetische Kausalgesetz von Oskar Hertwig.) F. Keibel.

62. **Epidemic Poliomyelitis.**—Baginsky remarks that the term "spinal paralysis" will have to be dropped as the disease is so variable and is liable to include meningeal, bulbar and spinal symptoms. He urges sending out a question blank to the physicians in the district to get a general oversight of the conditions prevailing in the recent Berlin epidemic. It was noted at Graz that more cases developed in the surrounding country than in the town itself.

64. **Syphilis of the Stomach.**—Siegheim summarizes what has been published on the subject of gastric ulcer, gastric tumor and pyloric stenosis developing as a syphilitic lesion and a fourth form—hyperplastic cellular infiltration leading to fibrous induration. It is only three years since Brunner was able to compile from the literature thirteen cases in which an operation had been performed on the stomach on a mistaken diagnosis, the lesion in question proving to be of syphilitic origin. Surgical treatment of tertiary syphilitic lesions in the gastro-intestinal tract, Siegheim exclaims, in future should be referred to only as a historical reminiscence. The Wassermann reaction may clear up the diagnosis, as in a case he reports from his own experience: A man of 39 acquired syphilis and was given repeated thorough courses of mercurial and iodid treatment during three or four years. Sixteen years later occasional attacks of vomiting and oppression in the gastric region after eating were accompanied by loss of weight and other symptoms, dilatation of the stomach, lack of free hydrochloric acid and presence of lactic acid with radiographic findings typical of stenosis of the pylorus. All this, in connection with the fact that the patient belonged to a "carcinoma family," pointed to gastric cancer in an advanced stage. As a last glimmer of hope the Wassermann test was applied; the findings were strongly positive, and under energetic mercurial treatment all the symptoms subsided and the patient rapidly recovered apparently complete health and has no further gastric disturbances. The peculiar severity of the syphilis in this case is evident in the serious recurrence after sixteen years in the form of a gumma in the pyloric region leading to stenosis and consequent dilatation of the stomach. Einhorn has reported a similar case except that in his patient there was never any lack of free hydrochloric acid. In Siegheim's case the motor functioning of the stomach became normal but no free hydrochloric acid could be found at the last examination although the gastric functioning was apparently normal. He adds that his case teaches the importance of direct treatment of the syphilis so long as the Wassermann reaction is markedly positive.

65. **Febrile Syphilitic Lesions in the Liver.**—In Kirchheim's two cases the tertiary lesions in the liver had involved the adjoining diaphragm with perforation in one case and propagation to the right lower lobe, empyema and chronic inflammation of this part of the lung. In the other case the participation of the diaphragm in the process entailed a syndrome simulating acute pneumonia, although there had been no initial chill and the sputum was not characteristic. In the second week pleurisy with effusion developed requiring repeated tapping. The fever persisted after subsidence of the pneumonia but repeated examinations failed to reveal the clue until in the ninth week the liver was found to be enlarging and the progressive cachexia pointed to a subphrenic abscess and staphylococci were cultivated from the pus. Hemorrhagic nephritis followed with death the fifth month after the development of the pneumonia-like syndrome. The microscope disclosed typical gumma. In both cases secondary infection of the gumma in the liver was responsible for the protracted course and final fatal termination. Specific treatment had not been given in either case as there had been nothing to suggest syphilis until, a few days before death, one patient acknowledged old syphilitic infection; specific treatment then came too late. In a third case three small gummas in the liver had involved the diaphragm but had caused no further trouble, the patient succumbing later to a brief perforation peritonitis. Klemperer has asserted that ulcerating gumma alone is sufficient to cause fever; in his cases all symptoms disappeared under specific treatment.

67. **Myeloid Chloroma.**—Paulicek and Wutscher give the particulars of a case in which a chronic myeloid leukemia in a young man blended into chloromatosis. The Roentgen-ray treatment given the patient may have been responsible for the development of the latter.

70. **Traumatic Sarcoma.**—A man aged 41 was hit in the calf by an iron rod. The open wound healed in two weeks but a swelling persisted and the point became painful so that by the end of five months he had to give up work and take a course of rest and compresses for the assumed varicose disturbances. No improvement followed and the lesion was excised. The microscope showed a round-celled sarcoma, and the thigh was amputated at once but metastasis in the spine developed in a few months. The insurance company accepted without question the direct connection between the industrial accident and the following malignant disease.

71. **To Remove Iodin Stains.**—Snoy calls attention anew to the power possessed by sodium thiosulphate to cleanse the skin and linen of the stain left by tincture of iodin. He applies a warm concentrated solution of the sodium hyposulphite (as it is more generally called), to the iodin stain. A chemical change rapidly takes place, the two chemicals blending to form sodium iodid and tetrathionate which are both very soluble and readily wash off the skin and tissues. He has never observed any injurious by-effects from the procedure on either skin or linen.

Medizinische Klinik, Berlin

January 22, VII, No. 4, pp. 127-164 and Supplement

74 *Scarlet Fever and Its Complications. (Scharlachfieber und seine Komplikationen.) H. Lüdke.
75 *Symptomatology of Cerebral Embolism. (Gehirnembolie.) B. Hippel.
76 Serotherapy of Urticaria. P. Linser.
77 Acute Syphilitic Yellow Atrophy of the Liver. W. Braunschweig.
78 Respiratory Exercises in Treatment of Bronchial Asthma. L. Hofbauer.
79 Peroneus Paralysis After Administration of Salvarsan. (Zur neurotoxischen Wirkung des Salvarsans.) G. Walterhöfer.
80 New Technic for Determination of Tubercle Bacilli. (Neuere Methoden zum Nachweis von Tuberkelbazillen in Sputum und in pathologischen Sekreten und Geweben.) M. Kawai.
81 Salvarsan in Syphilis. E. Tomasczewski.

74. **Scarlet Fever Complications.**—Lüdke says in the course of his study of the subject that the temperature curve is a valuable guide to the prognosis; even the slightest rise after the disease has begun to decline indicates some complication, and reduction in the amount of urine is the most certain sign of severe nephritis. He states that one attack of scarlet fever generally confers immunity, and that the character of the prevailing epidemic determines whether the disease is to be mild or severe. Special attention must be paid to the middle ear with scarlatinal sore throat; tenderness in the mastoid region and any rise in temperature should be watched for. Even with mild scarlet fever the child should stay in bed three weeks, he declares, and not be allowed to get up until repeated examination of the twenty-four hours' urine shows the absence of albumin. The disease may occur merely as an ordinary sore throat and thus escape detection.

75. **Symptomatology of Embolism in Cerebral Vessels.**—Hippel has recently encountered two cases without the usual triad of symptoms—apoplectic seizure, loss of consciousness and hemiplegia. The first patient was a young man and hemiplegia developed insidiously, the left side becoming paralyzed for a few days and then the hemiplegia subsided and the patient felt comparatively well for two days, but then symptoms typical of meningitis developed and he died in coma. Necropsy revealed embolic obstruction of the right middle cerebral artery. Wernicke has reported a similar case in a woman of 73, death occurring from asphyxia. Hippel's

patient, after subsidence of the hemiplegia, showed no symptoms of embolism, merely the syndrome typical of meningitis. Death occurred two weeks after the first sign of trouble. Walker has reported three cases of cerebral embolism with symptoms suggesting merely acute meningitis. In Hippel's second case a boy of 8 convalescing from diphtheria suddenly developed symptoms of meningitis; there was no tendency to hemiplegia and no apoplectic seizure, but necropsy disclosed extensive embolism of the right middle cerebral and internal carotid arteries involving the finest ramifications.

Monatsschrift für Kinderheilkunde, Leipsic

IX, No. 9, pp. 455-549

82 Influence of Heat on Infant Organism. H. Kleinschmidt.
83 Buttermilk in Infant Feeding. (Buttermilchernährung des Säuglings.) M. Menschikoff.
84 Respiratory Metabolism in New-Born Infants. (Zur Physiologie des neugeborenen Kindes. II.) W. Birk and F. Edelstein.
85 Duration, Extent and Course of Physiologic Decline in Weight of New-Born Infants. (Zur Physiologie des Neugeborenen.) W. Pies.
86 Lime Metabolism in Rachitis. (Kalkstoffwechsel bei Rachitis.) W. Birk and A. Orgler.

Münchener medizinische Wochenschrift

January 24, LVIII, No. 4, pp. 177-232

87 *Hemorrhages During Early Pregnancy and Their Relation to Abortion. L. Seitz.
88 Pharmacologic Research on Mixed Anesthesia. (Mischnarkose.) H. Fühner.
89 *Metabolic Research During Exclusive Milk Diet. (Stoffwechseluntersuchungen bei der Karellschen Milchkur.) C. Hegler.
90 Stimulating and Coagulating Action of Epinephrin. (Zur kreislaufanaleptischen und telehämostyptischen Wirkung des Nebennierenextraktes.) R. von den Velden.
91 Dosage of Roentgen Rays. (Methode zur Messung der Röntgenstrahlung in der Therapie.) H. Meyer.
92 *Salvarsan in Syphilis. B. Spiethoff.
93 Cervical Cesarean Section. (Zur Methode und Indikationserweiterung des zervikalen Kaiserschnitts.) G. A. Walcher.
94 *Improved Technic for van Deen Blood Test. Wackers.
95 Regional Variability in Susceptibility to Iodin. (Empfindlichkeit gegen Iod.) P. Fleischmann.
96 Radiotherapy of Large Epithelial Defects. C. Widmer.
97 Historical Contribution to Treatment of Syphilis with Arsenic. G. Kirchgaessner.

87. **Hemorrhage During the First Months of Pregnancy and Its Relation to Abortion Later.**—Seitz states that hemorrhage in the first four months of pregnancy occurred in 87 of the 25,000 lying-in cases at the Munich maternity, the patients regarding it as recurring menstruation, and in an additional 273 there was atypical hemorrhage, but abortion did not follow at once in any instance. The fetus however had in some cases suffered so that only 145 of the children were carried to normal term and left the clinic in good health. Treatment of the hemorrhage has not much prospect of success in preventing serious injuries to the fetus except when the hemorrhage is due to trauma or endometritis. With trauma, the hemorrhage is the result of separation of some portion of the placenta, and treatment should aim to prevent any contractions of the uterus which might separate more of it. Strict rest in bed should be enforced. Only with bed-rest for from six to eight weeks is it possible to tide the patient past the critical period when she is subject to habitual abortions at the period in question or has been having long-continued hemorrhages. Opium should be given as indicated to prevent the uterus from contracting. Long-continued hemorrhage during the first two months seems to be inevitably fatal for the fetus, but during the third and fourth month it displays remarkable resistance. In conclusion he states that in two cases the ovum was expelled without decidua after hemorrhage during the second month, but to his surprise the pregnancy continued and a healthy child was born at term; there had evidently been a twin pregnancy and after expulsion of one fetus the other continued its growth.

89. **Restriction to Milk in Treatment of Obesity.**—Hegler records the metabolic findings in a number of persons taking the Karell cure, namely restriction to less than a quart of milk a day, the patient staying in bed, the bowels being kept loose with a laxative mineral water, with massage given daily—this treatment being kept up for from five to ten days. In one case the patient weighing 451 pounds, lost 101 pounds in the course of eighty days during which the Karell course had been repeatedly given and the patient never allowed over 700 calories a day. The general health was much improved and the patients felt stronger in every case. Practical experience seems to confirm the advantages of the Karell course, he states, although theoretically much can be said against such a starvation method of treatment.

92. **Salvarsan.**—Spiethoff has encountered a second case of collapse several hours after injection of salvarsan. His first case was mentioned in these columns Oct. 8, 1910, page 1331. In the second case the collapse occurred during the daytime, five hours after an intravenous injection of 0.45 gm. in an alkaline solution. The danger was promptly recognized and stimulants applied, soon restoring the patient, a robust young woman in the second stage of syphilis. In the other case the collapse occurred in the night after subcutaneous injection, and nothing was known of it in time. Since then Spiethoff has made the injections exclusively in the morning. The heart was not quite normal in either of these cases, but the collapse, he believes, was unmistakably the result of arsenic intoxication. His experience with salvarsan in 200 cases of syphilis confirms, he thinks, the advantages of the Iversen technic, first intravenous and then after four days a subcutaneous injection, with another intravenous injection four weeks later. Great attention must be paid to the heart both before and after the treatment and tobacco and alcohol must be avoided for a time. One young man attended a party eight days after injection of 0.6 gm., and he drank a great deal and smoked cigarettes, neither of which had ever previously affected him. But the next day acute heart weakness developed with which he had to contend for weeks. The action of the three poisonous substances together, the nicotin, alcohol and salvarsan, proved too much for his heart. Myocarditis and heart defects contra-indicate the use of salvarsan, Spiethoff insists, as also affections of the central nervous system localized in vital centers. Any local reaction to the salvarsan might prove dangerous under these conditions. In one of his cases a man had well compensated mild aortic insufficiency but no other pathologic findings could be detected in the heart. A few days after subcutaneous injection of 0.3 gm. salvarsan, signs of heart weakness became apparent, proving fatal on the eleventh day. Necropsy revealed unsuspected degeneration of the myocardium which had evidently become aggravated under the influence of the medication.

94. **Improved Technic for Test for Occult Blood.**—Wackers applies the test to the fluid to be examined diffused over the walls of a moist filtering paper funnel. It is astonishing, he says, how this magnifies the findings and does away with the uncertainty in case of highly colored urine. The advantages of the simple guaiac-turpentine test thus "enriched" are evident in case of convalescence from hemorrhagic nephritis, for example, permitting detection of even the slightest trace of blood in the urine. The test can be made with as little as 10 c.c. of urine.

Wiener klinische Wochenschrift, Vienna

January 26, XXIV, No. 4, pp. 115-152

98 *Pancreatic Extract in Epinephrin Glycosuria. (Hemmung der Adrenalinglykosurie durch Pankreaspräparate.) O. v. Fürth and C. Schwarz.
99 Origin of Melanotic Skin Pigments. K. Kreibich.
100 *Serotherapy of Cerebrospinal Meningitis. (Genickstarre und Heilserum.) E. Schepelmann.
101 Nail Extension for Fractures. (Nagelextension aus dringlicher Indikation.) H. Ehrlich.

98. **Research on Epinephrin and Other Glycosuria.**—Fürth and Schwarz report experimental research which has shown that injection of pancreas extract, turpentine or other irritating substance into the peritoneum injures the kidneys to such a degree that their functioning is seriously impaired and they are unable to eliminate salt and sugar as under other conditions. This simple explanation of the checking of the glycosuria which follows injection of epinephrin, by the injury of the kidneys after injection of almost any irritating substance into the peritoneum, destroys, they say, the foundations for Zuelzer's assumption of some chemical hormone inhibiting the epinephrin glycosuria when pancreas extract is injected into the peritoneum. Their findings also explain the familiar fact that in diabetes any injury of the kidneys is liable to reduce the output of sugar in the urine.

XUM

100. **Serotherapy in Epidemic Meningitis.**—Schepelmann reports an unusually severe case of epidemic cerebrospinal meningitis in a previously healthy woman of 26. No benefit seemed to be derived from the usual measures, including twice repeated lumbar puncture, but the thirteenth day of the disease a prompt turn for the better followed lumbar injection of antimeningococcus serum. The temperature dropped with sweating and recovery was soon complete. The only by-effects were recurring harmless urticaria and, the first day, there was some weakness of the heart requiring stimulants. He reviews the literature on the subject of serotherapy of meningitis, drawing the conclusion that all other measures have merely symptomatic action—the serotherapy alone is a causal remedy. The mortality of the disease has dropped since its introduction in Germany to two-thirds or a quarter of what it used to be, and the course of the disease is much milder and shorter. The earlier the injection is made, the better the results, and a single large dose is better than repeated small doses. Next to diphtheria, he declares, ranks the serotherapy of meningitis. No serious by-effects from its use have been reported.

Zeitschrift für Kinderheilkunde, Berlin

November, I, No. 2, pp. 139-206

102 *Pathogenesis of Digestive Disturbances in Infants. (Verdauungsstörungen im Säuglingsalter.) H. Bahrdt, F. Edelstein, L. Langstein and E. Welde.
103 Bacterial Content of Infant Feces. S. Kramsztyk.
104 Iron Content of Human Milk and Its Relation to Anemia in Infants. (Eisengehalt der Frauenmilch.) H. Bahrdt and F. Edelstein.
105 Behavior of Camphor in Infant Organism. (Zur Kenntnis der Ausscheidung von Glucuronsäure im Säuglingsalter.) F. W. Schlutz.

December, No. 3, pp. 207-314

106 Sugar Content in Infants' Blood. (Blutzuckeruntersuchungen bei Säuglingen.) S. Cobliner.
107 Action of Various Sugars in Dyspeptic Infants. (Wirkung der verschiedenen Zuckerarten bei ernährungsgestörten Säuglingen.) J. S. Leopold.
108 *Diagnostic Importance of Glycuronic Acid in Infants' Urine. (Klinischer Wert der neueren Glucuronsäure-Reaktion für die Beschreibung des Harnes der Säuglinge.) E. Mayerhofer.

January, No. 4, pp. 315-422

109 Experimental Psychology in Children. (Assoziationsversuche an Kindern.) T. Goett. Commenced in No. 3.
110 Influence of Phosphorus-Cod Liver Oil on Metabolism of a Rachitic Infant. C. Towles.
111 Elimination of Gastric Ferments in Infants' Urine. (Ausscheidung der Magenfermente im Säuglingsharn.) H. Pechstein.
112 *So-Called Alimentary Fever. P Heim and K. John.

102. **Pathogenesis of Digestive Disturbances in Infants.**—Bahrdt and his coworkers have devised a method for quantitative determination of the volatile fat acids. The apparatus combines a vacuum and steam distillation, and they record the findings with human and cows' milk, infants' stools and dog stomach content and stools. Their research was undertaken to determine the actual source and nature of the hypothetical toxins developing in the course of digestion which are assumed to be responsible for the so-called alimentary intoxication.

108. **Diagnostic Importance of Glycuronic Acid in Infants' Urine.**—Goldschmiedt described last year a simple, rapid and sensitive test for glycuronic acid in the urine, and Mayerhofer here reports the findings in ten infants. They confirm the importance of the test for clinical purposes as the reaction was found almost invariably negative in healthy infants but it became promptly positive with any disturbance in the child's health, especially any febrile diarrheic trouble. In advanced stages, the findings may become negative again as ability to eliminate glycuronic acid becomes exhausted. The test is made by adding to 1 drop of urine 2 drops of a 10 or 15 per cent. alcoholic solution of alpha naphthol. The mixture is then poured cautiously on top of 3 or 4 c.c. of concentrated sulphuric acid. Colored rings form at the zone of contact between the two liquids, and on the side toward the sulphuric acid an intensely green ring forms in case of the presence of glycuronic acid in the urine. To have the test absolutely certain, the nitrites must first be excluded, which is easily done with the diphenylamin reaction. A positive alpha naphthol reaction in combination with a negative diphenylamin reaction reveals the presence of glycuronic acid in the urine, and this finding parallels the digestive disturbances and disappears as conditions return to normal. The findings with this test explain the danger of giving camphor to infants suffering from inanition. Hochsinger recently reported serious symptoms of intoxication in an infant with cholera infantum and inanition who had been given small doses of camphor.

112. **Alimentary Fever.**—Heim and John suggest that what has been called alimentary fever is in reality more a stasis fever—a stagnation of heat, and they present arguments and evidence to sustain this view.

Zentralblatt für Chirurgie, Leipsic

January 28, XXXVIII, No. 4, pp. 105-152

113 Operative Treatment of Cleft Palate. A. Codivilla.
114 *Improved Technic for Operations on the Thorax. (Handgriffe am Zwerchfell und Herzen für Thoraxoperationen.) H. Teske.

114. **Improved Technic for Operations Within the Thorax.**—Teske found on laboratory animals that the dangers from opening up the thoracic cavity could be obviated by mechanical means to prevent the diaphragm from making excessive excursions. Traction on the manubrium before opening the chest has this effect, and he suggests traction on the costal arches on both sides as liable to prove effectual in man. After the chest is opened he pushes down the bulging diaphragm with the tip of his little finger, or a spatula, repeating this rhythmically, and he found that the respiration became slower and regular at once when this was done. In applying the compression to the diaphragm, he manages so as to give a little support to the heart at the same time. By this means it is possible to ward off the momentary arrest of the respiration as the thorax is opened up, which he regards as the chief factor in pneumothorax shock.

Zentralblatt für Gynäkologie, Leipsic

January 28, XXXV, No. 4, pp. 137-176

115 Lymph Follicles in Mucosa of Cervix Uteri (Gehäuftes Vorkommen echter Lymphfollikel in der Schleimhaut der Portio vaginalis uteri.) H. Hauser.
116 Cancer in Stump of Cervix Uteri. R. v. Fellenberg.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 19, XXXII, No. 9, pp. 91-98

117 Incubation Period in Malaria. M. Gioseffi.

January 22, No. 10, pp. 99-114

118 Case of Tuberculous Process in Body of Uterus. P. Romeo.

Riforma Medica, Naples

January 1, XXVII, No. 1, pp. 1-56

119 Advantages of Proper Proportion of Animal Food: Tests on Vegetarians. (Influenza delle proteine animali nel vegetariani.) P. Albertoni.
120 *Cancer Involving Stomach and Spleen. (Lezione clinica.) G. Baccelli.
121 *Acute Sepsis in Children. A. Baginsky.
122 Variability of Diseases. G. Banti.
123 Symptoms with Disease of Parietal Lobe of the Brain. (Sindrome parietale.) L. Bianci.
124 *Omentopexy for Ascites with Valvular Defect. C. Bozzolo.
125 *Prophylaxis of Malaria. A. Celli.
126 Treatment of Surgical Tuberculosis, Especially of the Soft Parts. A. d'Antona.
127 Salvarsan in Syphilis. T. De Amicis.
128 Myelopathic Albumosuria. (Sul morbo di Kahler.) E. De Renzi.
129 Induced Pneumothorax. (Il pneumotorace artificiale guarisce la tisi? Ed in qual modo?) C. Forlanini.
130 Pharmacologic Study of Mercurial Compounds. (Albuminati mercurosi e albuminati mercurici in rapporto all'azione farmacologica dei diversi composti mercuriali.) G. Gaglio.
131 *Liver Percussion Findings on Left Side. (Sull'ottusita epatica vertebrale e paravertebrale sinistra.) P. Grocco.
132 Sydenham's Chorea a Curable Encephalopathy. V. Hutinel.
133 The Sugar in the Blood. (Lo zucchero del sangue.) R. Lépine.
134 *Present Status of Specific Treatment of Tuberculosis. (I nuovi orientamenti della pathologia e della clinica della tubercolosi in rapporto alla terapia specifica.) E. Maragliano.
135 *Chronic Hypothyroidism. E. Marchiafava.
136 *Serotherapy in Syphilis. G. Marinesco.
137 Salvarsan. A. Murri.
138 *Acetonuria and Its Influence in Treatment of Diabetes Mellitus. C. v. Noorden.
139 Exostosis and Talalgia. (Le esostosi sotto-calcanee e la talalgia.) P. Reclus.
140 *Sign of Metastasis with Cancer of Pylorus. I. Tansini.
141 *Phloridzin Test of Liver Functioning. (Nuove indagini sul valore semeiologico della glicosuria florizinica, considerata come segno d' insufficienza epatica.) I. Teissier.

120. **Study of the Patient.**—The *Riforma* opens its twenty-seventh year with a special number containing brief articles from twenty-six leading internists. Baccelli closes his bedside lecture on a case of cancer involving presumably the

stomach and spleen, with the remark that as Cato, in ancient Rome, used to close all his speeches, on every occasion, with the words "Carthage must be blotted out," so he never lets an opportunity pass to reiterate that the study of the patient is the fundamental basis of all medical training, that the laboratory is made for the clinic, and that the clinic is the supreme authority at all times and on all occasions.

121. **Acute Sepsis in Children.**—Baginsky reports a case of general pneumococcus sepsis evidently originating in the tonsils. Pneumococci were found also in the appendix. In a second case staphylococci were responsible. He has noticed signs of primary visceral tuberculosis in twenty-four children dying from malignant scarlet fever in the last few years, and also in nineteen cases of malignant diphtheria but no signs of tuberculosis or syphilis were apparent in the majority of his cases of fulminating sepsis in children.

124. **Omentopexy for Recurring Ascites from Valvular Disease.**—Bozzolo reports a case in which the tendency to recurring ascites was completely cured by the Talma operation—omentopexy—to provide a collateral circulation. The patient was a woman of 30 who had had several attacks of acute articular rheumatism leaving a valvular defect with cardiac cirrhosis of the liver and abdominal dropsy. There were no signs otherwise of adhesive pericarditis and no traces of hepatitis were found at operation. A week later, the ascites had recurred and in the third week 6½ liters of fluid were withdrawn, and 8 liters again nearly three weeks later; after this the dropsy gradually subsided and by the end of two months there was no further trace of ascites and there has been no recurrence during the year and a half to date. Bozzolo knows of only one other case on record in which ascites from a cardiac defect was treated with omentopexy, and the result was equally successful.

125. **Prophylaxis of Malaria.**—Celli says that effectual prophylaxis of malaria requires time, organization, education, quantities of quinin and patient perseverance before it will be possible to eradicate the century-old plague of malaria in the endemic zones in Italy. The region is too vast for destruction of the mosquitoes by physical, chemical or biologic means, but with the aid of screening and quinin it would soon be possible to stamp out malaria even with persistence of the mosquitoes if it were not for the prejudice, the hatred of innovations among the authorities and the apathy and ignorance of the population, the obstacles and deficiencies of the rural public health service, the indifference of employers and the indolence of the local authorities. Preventive and curative quinin treatment is the natural base for the antimalaria campaign, he reiterates. This will cure and keep well the people in the endemic zones while the country is being drained and rendered fit for colonization—the ideal aim.

131. **Vertebral and Paravertebral Hepatic Dulness on the Left Side.**—Grocco calls attention to the extension on the left side of the area of hepatic dulness when the liver is enlarged. He has found the upper limit of the dulness extend for 7, 8, 10 or even 12 cm. beyond the median line in the back—a most instructive sign in some cases.

134. **Present Status of Specific Treatment of Tuberculosis.**—Maragliano comments on the increasing complexity of the morbid conditions as the tuberculosis progresses, other factors coming into play, secondary infection and the toxic products from disintegration of cells and bacteria, so that the primary influence of the tubercle bacilli is gradually overshadowed by the crowd of other pathogenic elements which in time dominate the situation. There is a vast difference, he reiterates, between tuberculosis and phthisis; the latter is a complex of dystrophic changes set in motion by the tubercle bacillus but having long outgrown its influence. Specific treatment of tuberculosis acts only on the primal tubercle bacilli and their toxins, and it is absurd to expect it to combat the other factors. If physicians will bear this in mind they will appreciate better the limitations of tuberculin treatment and not be disappointed when it proves impotent against the subsidiary but gradually overmastering factors.

135. **Chronic Thyroid Insufficiency.**—Marchiafava reports the case-histories of two men and a woman, between the ages of 44 and 55, who suffered for months or years from severe neuromuscular prostration, apathy and somnolency; they were incapacitated for business by dropping to sleep at any moment and snoring. The appetite and digestion remained normal but the face was swollen, although not edematous, and there was a tendency to obesity and chilliness; the skin was dry, the pulse weak and slow but regular, the gait uncertain and languid, the voice hoarse. The syndrome suggested possibly chronic uremic poisoning, but there was no headache or visual disturbance. He attributed the trouble to thyroid insufficiency and his diagnosis was confirmed by the prompt recovery under thyroid treatment. His records include two other cases of chronic hypothyroidism in which similar benefit was rapidly realized under organotherapy. In about two weeks all the patients had regained their strength and normal poise and resumed an active life. One patient had taken previously a long course of iodid as a preventive of dreaded arteriosclerosis, and this might have been responsible for the defective functioning of the thyroid; in the second case there had been a preceding attack of Malta fever which might have been the causal factor. The urine findings suggested chronic nephritis, but all these signs disappeared under thyroid treatment. The somnolency was the symptom that brought the patients to the physician, and the cure under thyroid treatment throws possibly some light on the mechanism of sleep. He warns that albumin and tube-casts in the urine must not always be ascribed to nephritis; his cases show that they may be the result of secondary changes in the kidneys from defective thyroid functioning and will subside as the latter is regulated.

136. **Serotherapy of Syphilis.**—Marinesco injected a few syphilitics with serum from other syphilitics who had been injected with salvarsan, but the results were disappointing.

138. **Acetonuria in Diabetics.**—The various types of diabetic acetonuria are here reviewed by von Noorden and the dietetic measures involved are discussed in detail.

140. **Abdominal Sign of Intestinal Metastasis of Pylorus Cancer.**—Tansini has noticed that with cancer at the pylorus the abdomen is sunken in, but that after metastasis has developed in the intestines the abdomen is no longer sunken in but has a normal aspect. In three such cases there was nothing to indicate the involvement of the intestines except the lack of this characteristic retraction of the abdominal walls which he has found constant with cancer at the pylorus. He was not positive enough in regard to the new sign to refrain from an operation on the pyloric cancer on that account alone. But in each instance the laparotomy revealed inoperable metastasis in the intestines.

141. **Phloridzin Glycosuria and Insufficiency of the Liver.**—Teissier presents evidence to show that the glycosuria which follows injection of phloridizin may be retarded or prevented by defective liver functioning even when the kidneys are intact. With diseased kidneys the liver may influence in part the reaction to the phloridzin test. The experiences with it show that the biologic phenomena are not simple but complex reactions, and that in pathology as in biology the functional synergy of the organs must be taken into account.

Hospitalstidende, Copenhagen

January 4, LIV, No. 1, pp. 1-24

142 *Direct Broncho-Esophagoscopy for Removal of Foreign Bodies. (Fjernelse af fremmede Legemer fra Lungen og Spiserøret.) E. Schmiegelow.

January 11, No. 2, pp. 25-48

143 Changes in the Secretion of the Cervix Uteri During Pregnancy. (Forandringer i Cervikalsekretet ved Svangerskab.) O. Jersild.

January 18, No. 3, pp. 49-72

144 *Salvarsan in Syphilis. C. Rasch.

145 Tenosynovitis in the Forearm. (Tenosynovitis i Iste Kulisse pa Antibrachium, ledsaget af Traktionsperiostitis paa Processus styloideus radii.) K. Poulsen.

January 25, No. 4, pp. 73-104

146 *Inherited Predisposition to Tuberculosis. N. J. Strandgaard.

147 The Air in Pneumothorax. (Undersøgelser over Pneumothorax.) F. Tobiesen.

142. **Foreign Bodies in Lungs and Esophagus.**—Schmiegelow describes nine cases in which under direct visual inspection it was possible to remove the foreign body promptly and without injury.

144. **Salvarsan.**—Rasch remarks in this discussion of his experience with salvarsan, that this drug will always stand as a milestone in the progress of medicine on account of the way in which it was introduced, instead of the manufacturing chemists casting their uncritically produced and untried remedies into physicians' hands. He adds that it is not every day that we encounter a remedy which seems to cure two diseases, relapsing fever and fowl spirillosis, while it has a powerful curative influence on two others, syphilis and frambesia, and is proving useful also in a fifth, quinin-proof malaria. He advocates giving salvarsan in syphilis in conjunction with mercury or in combination with other old antisyphilitic measures—such as antimony and potassium tartrate or chromium and gold compounds—which have recently been shown to have a destructive action on trypanosomes. A rational revival and combination of remedies has often given better results in Rasch's practice than a correspondingly large dose of a single drug, while the toxic action was much less. Ehrlich has also stated that his research on chemotherapy has confirmed the probable advantages of this method.

146. **Inherited Predisposition to Tuberculosis.**—Strandgaard has been studying conditions in eighty-nine families in which he has known of 197 cases of tuberculosis, and tabulates the details for comparison, listing the stage and extent of the pulmonary affection, the age at which it developed, the special symptoms and complications and the course. In twenty-three of the cases a parent and child were affected, in the others, brothers and sisters only. He does not draw any general conclusions.

Ugeskrift for Læger, Copenhagen

January 26, LXXIII, No. 4, pp. 105-140

148 *Recurring Mastoiditis. S. V. W. Jantzen.
149 *Unusual Causes for Restlessness in Infants. (Et Par vigtige Affektioner hos spæde Børn.) F. Ingerslev.

148. **Recurring Mastoiditis.**—Jantzen tabulates the details of twenty-one cases of recurring mastoiditis in which a second operation was required; the total mastoid operations at Mygind's clinic during the period 1905 to date was 225. Only one of the patients with recurrence was an adult. The interval ranged from a few months to five years. He discusses the causes for recurrence and the means to avoid and treat it, reviewing considerable literature on the subject.

149. **Unusual Causes for Restlessness in Infants.**—Ingerslev discusses adhesive balanopostitis and fissure of the anus as liable to make infants fret and cry when none of the usual causes for restlessness can be discovered. He thinks that fissure of the anus is much more common than is generally recognized.

Correction.—Serodiagnosis of Syphilis.—The temperature specified in the sixteenth line of abstract 95, page 547, Feb. 18, 1911, should have been 55 C. instead of 65 C., as printed.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

MODERN TREATMENT. The Management of Disease with Medicinal and Non-Medicinal Remedies. In Contributions by American and Foreign Authorities. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica, Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Director of the Clinical Department of the Phipps Institute (University of Pennsylvania). In Two Volumes. Vol. II. Cloth. Price, $6 net. Pp. 900, with 88 illustrations. Philadelphia: Lea & Febiger (1911).

MODERN DIAGNOSIS AND TREATMENT OF DISEASES OF CHILDREN. A Treatise on the Medical and Surgical Diseases of Infancy and Childhood, with Especial Emphasis on Clinical Diagnosis and Modern Therapeutics. For Practitioners and Students of Medicine. By Herman B. Sheffield, M.D. (Co-Author of "Practical Pediatrics"), Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital. Cloth. Price, $4.50. Pp. 619, with illustrations. Philadelphia: F. A. Davis Co., 1911.

TRANSACTIONS OF THE FOURTH INTERNATIONAL SANITARY CONFERENCE OF THE AMERICAN REPUBLICS. Held in San José, Costa Rica, Dec. 25, 1909, to Jan. 3, 1910. Cloth. Pp. 209, with illustrations. Published and Distributed Under the Auspices of the Pan-American Union, John Barrett, Director-General, Washington, D. C., 1910.

MEMORANDA ON POISONS. By Thomas Hawkes Tanner, M.D., F.L.S. Eleventh Edition. By Henry Leffmann, A.M., M.D., Professor of Chemistry in the Woman's Medical College of Pennsylvania. Cloth. Price, 75 cents net. Pp. 167. Philadelphia: P. Blakiston's Son & Co., 1911.

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN DISEASE. By Alida Frances Pattee, Graduate Department of Household Arts, State Normal School, Farmingham, Mass. Sixth Edition. Cloth. Price, $1.50. Pp. 475. Mount Vernon, N. Y.: A. F. Pattee, 1910.

SOME PLAIN FACTS ABOUT CONSUMPTION OR PULMONARY TUBERCULOSIS. Prepared by F. G. Stroud, M.D. Paper. Free on Receipt of Stamp. Pp. 7. Moorestown, Burlington County, N. J.: Board of Health, Chester Township (1911).

THE SHIP-SURGEON'S HANDBOOK. By A. Vavasour Elder, M.R.C.S., L.R.C.P., Surgeon, White Star Line. Second Edition. Cloth. Price, 5 shillings net. Pp. 387. London: Baillière, Tindall and Cox, 1911.

REPORT OF COMMISSION ON OCCUPATIONAL DISEASES TO HIS EXCELLENCY GOVERNOR CHARLES S. DENEEN. January, 1911. Paper. Pp. 219, with illustrations. C. R. Henderson, Secretary, University of Chicago.

PLASTIC AND COSMETIC SURGERY. By Frederick Strange Kolle, M.D., Fellow of New York Academy of Medicine. Cloth. Price, $5. Pp. 511, with 522 illustrations. New York: D. Appleton & Co., 1911.

WHO'S WHO. 1911. [BRITISH.] An Annual Biographic Dictionary. Sixty-Third Year of Issue. Cloth. Price, $2.50 net. Pp. 2246. New York: The Macmillan Co., 1911.

TRUTHS: TALKS WITH A BOY CONCERNING HIMSELF. By E. B. Lowry, M.D., Author of "Confidences." Cloth. Price, 50 cents. Pp. 95. Chicago: Forbes & Co., 1911.

ANNUAL REPORT OF THE ASYLUM FOR CHRONIC INSANE, MILWAUKEE COUNTY. For the Year Ending Sept. 30, 1910. Paper. Pp. 55. Wm. F. Beutler, M.D., Supt.

New Patents

Recent patents of interest to physicians.

965555. Dispensing device for soda fountains. William H. Becker and C. W. Steed, St. Louis.
965556. Abdominal bandage. Josef Beltermann, Mannheim, Germany.
965273 and 965557. Making cuprammonium solution. Henry Bernstein, Philadelphia.
965276. Pocket sputum cup. John A. Brooke, Wilkes-Barre, Pa.
965564. Sanitary cover for flesh-contact implements. George H. Coates, Worcester, Mass.
965165. Shaker bottle. John L. Dunnock, Baltimore.
965174. Stethoscope. Nathan Fuchs, Chicago.
965704. Valve for carbonated liquid receptacles. George Goldberg, Amsterdam, Netherlands.
965630 and 965631. Briquet for making oxygen. George F. Jaubert, Paris, France.
965393. Einar H. Meyer and J. M. A. Stillesen, Niagara Falls, Ontario, Canada.
965533. *X*-ray screen or shield. Charles H. Meyers, Buffalo, N. Y.
965219. Quick-threading surgical needles. Martinus J. C. Nyborg, Minneapolis, Minn.
965257. Antiseptic mouthpiece cover. William H. Waldron, San Francisco, Cal., and L. R. Krumm, Columbus, Ohio.
966221. Truss. Walter Lange, Zwickau, Germany.
966225. Artificial leg. James A. Long, Fair Mount, Ga.
966050. Spirometer. George W. Ramage, New York.
966136. Compound or emulsion and production of same. Julius Stockhausen, Crefeld, Germany.
965966. Formalin vaporizer. Jena J. Van Dandaigue, Montreal, Quebec, Canada.
966642 and 966643. Medicament and making the same. Albert D. Barr, Batesville, Ark.
966786. Producing medicaments. Albert D. Barr, Jersey City, N. J.
966787. Supporting belt or truss. Henry L. Benner, East Mauch Chunk, Pa.
966900. Disinfector. George H. Garnet, Allentown, Pa.
966748. Combined stopper and connection for water-bottles. Jacob Honecker, Cleveland, Ohio.
967125. Syringe. John B. Huppert, Pittsburg.
966838. Antiseptic body germ protector. Herman Jaffee, Hoboken, N. J., and E. M. Dorstewitz, New York.
966840. Automatic mercury dropper. Ernest C. Ketchum, Boston.
967136. Hypodermic syringe. John E. Lee, Conshohocken, Pa.
966696. Method and apparatus for marking *x*-ray negatives. Walter H. Merrill, Washington, D. C.
966863. Abdominal supporter. Laura N. Saemann, Oak Park, Ill.
967081. Abdominal supporter. Samuel H. Sublett, Sr., Hatton, Ark.
966872. Pasteurizing apparatus. August Tiesse, Chicago.
967488. Making barium sulfite. Le Roy Baker, St. Louis.
967736. Suspensory bandage. Samuel D. Delp, South Bethlehem, Pa.
967638. Bed-pan. Daniel Hogan, Hoboken, N. J.
967533. Cushion for bed-pans. Amanda R. Logan, East Chelmsford, and M. A. L. Barelle, North Reading, Mass.
967805. Bone-saw. August Meyer, Oakland, Cal.
967547. Strap for surgical bandages, corsets, etc. Mary C. Ninde, Fort Wayne, Ind.
967840. Medicinal soaps. Walter Schoeller and W. Schrauth, Berlin, Germany.
967450. Combined mixer and sprinkler. Zalmon G. Sholes, New York.
967852. Dispensing container. Clarence E. Stubbs, Baltimore.
967584. Casein derivatives or compounds and making the same. Rudolf Tambach, Ludwigshafen-on-the-Rhine, Germany.
967269. Surgical appliance. Smith G. Tibbs, Akron, Ohio.
967688. Topical medicated pad. Charles P. L. Titherley, Formby, England.
967469. *X*-ray apparatus. Harry F. Waite, New York.